ENGINEERING NEWS-RECORD

A McGRAW-HILL PUBLICATION

How to drive a "Bargain" in trenches

Old fashioned sheeting was difficult to drive and costly because new sheeting generally had to be used on every job. Then Armco engineers saw how a little sheeting sense would make profit dollars for contractors and other construction men. They developed Armco Steel Sheeting.

This practical sheeting has a small displacement for fast driving. Corrugated metal design provides ample strength without excess weight. Best of all, Armco Steel Sheeting can be used again and again. The sturdy sections pull easily without damage and save the cost of new sheeting on succeeding jobs.

Between jobs there is no costly storage problem. Units nest together conveniently in a small area. Light weight reduces handling and transportation costs.

Making products simpler and more efficient has been a prime goal at Armco for more than 40 years. So has the designing of products to meet specific needs. Today you can bring your drainage and construction problems to Armco with full assurance you will receive all the benefits of long experience, extensive research, and a real interest in helping you solve these problems.

Armco has a complete range of engineered products and convenient, authoritative data to help you. If your problem is difficult or unusual, why not talk it over with us.

ARMCO

ARMCO DRAINAGE & METAL PRODUCTS, INC.

MIDDLETOWN, OHIO • OFFICES AND PLANTS IN PRINCIPAL CITIES
SUBSIDIARY OF ARMCO STEEL CORPORATION

Berkeley, California ★ Middletown, Ohio ★ South Bend, Indiana ★ Baltimore, Maryland
Denver, Colo. ★ Des Moines, Iowa ★ Atlanta, Ga. ★ Topeka, Kansas ★ Houston, Texas
Minneapolis, Minnesota ★ Portland, Oregon ★ Washington, D. C. ★ Guelph, Ontario

B.F. Goodrich

This tire has a built-in rock-absorber

LAMBERT BROS., INC., of Knoxville, Tennessee, are engaged in quarrying operations in Tennessee, North Carolina, Georgia and Virginia. Trucks used in their operation travel in and out of the quarries, carrying heavy loads of dynamited limestone to the crusher. Pictured is one of the dump trucks at the Shepherd, Tennessee branch of the company (above), equipped with B. F. Goodrich Universal tires. Through the use of these tires the company says that better traction is obtained and that they hold as well in one direction as in the other. And the special construction provides unusual bruise resistance when travelling over rocks.

BFG Universals are ideal for toughest off-the-road service. They turn in top performance records even where rock, shale, stumps, ruts and other hazards are tire threats. Wedge-shaped tread resists cuts. Sidewalls are reinforced with tough, extra-thick rubber. The backbone, or body, of the tire is protected by the patented *nylon shock shield*. It acts as a shock-absorber—or "rock-absorber". And *here's* where you get extra bruise resistance. Strong, live, elastic nylon cords are built in between the tread rubber and the cord body. Under impacts of any kind, these cords work together, absorbing and distributing the shocks.

This feature is found in all BFG tires of 8 or more plies at *no extra cost*. *Double* nylon shock shield is used in Universals of sizes 11.00 and larger.

B. F. Goodrich tires are built for *every* type of on or off-the-road operation. No matter what your specifications may be, you'll find that your local B. F. Goodrich dealer can show you the way to longer and better tire service. *The B. F. Goodrich Company, Akron, Ohio.*

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ENGINEERING NEWS-RECORD

ABP Member ABC

Volume 147 NOVEMBER 8, 1951 No. 19

WALDO G. BOWMAN
Editor

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where

is a requirement!

IT is when smooth handling is a requirement that you find out about crane operation. When you have to balance 50 ft. of 60 in. pipe and shove it into the next section—when you have to lower a cage down a pier face for the inspector to look the concrete over—when you have to hold steel for welding or riveting, set stone or balance a concrete bucket six stories up and hit the elephant trunk, that is when you appreciate the value of smoothness of operation.

The Northwest "Feather-Touch" Clutch Control gives easier operation with freedom from the complications of delicate parts such as pumps, valves, compressors and tubing. Uniform Pressure Swing Clutches give smooth swing, reduce the danger of whipping and give increased accuracy in setting. Throttle control permits minute movements in handling the load and there is a Northwest Boom Hoist to fill every operating requirement. These Northwest advantages mean time saved on the job and greater safety for the setters! They mean money! Why not plan to have a Northwest? Talk to a Northwest Man. It will pay you to place an order.

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Contractor runs 8 jobs easily with 2-way radio in office and car

Handles 25% More Work With No Increase In Personnel or Equipment!

A simple but revolutionary electronic communication system, made by General Electric, is proving itself one of the most effective cost-cutters in the construction business today.

Called G-E 2-way radio, it provides instant voice communication between headquarters and vehicles on the move, or from truck-to-truck in motion. The latest units, now available to contractors, flash FM radio messages between cars, trucks and offices at ranges up to 50 miles in flat terrain, averaging 15-20 miles in normal city-county areas.

• **Users Enthusiastic** – A typical user is hauling contractor Steven Kravec of Syracuse, N.Y. He has one radio unit in his car, one in a service truck, and one at his office. Kravec drives 150-200 miles a week and figures that radio control of all his jobs (as many as 8 at one time) cuts his travel in half.

• **Cites Example** – On a recent excavating job, Kravec reports, he moved 33,000 cu yd in 23 days. During this period he didn't go to his office at all – he didn't have to. Via radio messages through his office man he ran 7 other jobs from his car, cutting legwork and mileage to a minimum. These projects included black-topping, fill and sewer work, plus a sand & gravel operation. Often he controls as many as 50 trucks in a 3-county area by radio.

• **New Angle on Time-Saving** – Kravec leaves his home at 6 A.M. and drives directly to job sites, talking by radio to his office on the way. This saves him 1½ hours of work time each morning. Equipment breakdowns on the job are handled quickly with repair instructions relayed by radio.

• **Lower Net Cost Per Job** – In use less than a year, his complete G-E radio system cost Kravec less than $2500. He reports it paid for itself in the first 3 months, has been a profit-maker ever since. Information on this and other types of industrial radio may be obtained from General Electric offices in leading cities, or by phone, wire or letter to the *General Electric Company, Section 22111-8, Syracuse, New York.*

GENERAL ELECTRIC

SPEEDS CHANGE ORDERS – If ready-mix plant 15 miles away wants #1 instead of #2 stone, order is flashed in seconds to radio car at pit. Time saved: two hours for travel and loading.

DIVERTS TRUCKS IN EMERGENCY – Caught on the road by radio message, trucks hauled 15 loads in one hour to shore up a sewer job cave-in. Quick action saved prime contractor at least $500 and a day's work with full crew.

CONTROL ON THE DASHBOARD – For wide-area operation, new radio system is hard to beat, is particularly suited to road and highway construction, dam and tunnel work.

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THE EXCLUSIVE "DRILL AND BLOW" FEATURE MEANS YOU BLOW THE HOLE AS YOU DRILL!

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NEWS BRIEFS

• **Macabre warning**—Traffic deaths, as well as other accidental fatalities, will be brought closer to the residents of Winona County, Minn., under a plan recently approved by the county commissioners. Three red lights will be installed in the tower of the county courthouse and will be illuminated for 24 hours following every accidental death on the highways, farms, factories or at home. "This plan," said C. H. Zealand, secretary of the Minnesota Safety Council, "is comparable to the 'death gong' which is being used by some 25 or 26 Minnesota radio stations to signal the occurrence of traffic deaths. This publicizing of traffic fatalities over the air has, I am sure, made many people aware of the tremendous toll we are paying in lives lost to speed and careless driving. It is hoped that the three red lights plan will be similarly effective in bringing the occurrences of traffic and other accidental deaths to the attention of the public."

• **Good news for Izaak Waltons**—Game fish played a part recently at ceremonies marking the progress of one of the greatest stream clearance projects ever undertaken in the United States. More than 20,000 fish were dumped into the Schuylkill River a few miles above Phoenixville, Pa. It was the first stocking of the river in history and emphasized the progress of the state's desilting program. A total of some 100,000 fish of legal size were dumped into the river within a week. Governor John S. Fine put in the first fish. Other officials assisting included Admiral Milo F. Draemel, Secretary of Forests and Waters, and Dr. Russel Teague, Secretary of Health. Draemel said the desilting project for the Schuylkill River has been completed, leaving only maintenance to be done.

• **Civil defense booklet**—The Federal Civil Defense Administration has issued a booklet on "Civil Defense in Industry and Institutions." It may be obtained for 25 cents from the Superintendent of Documents, Washington, D. C.

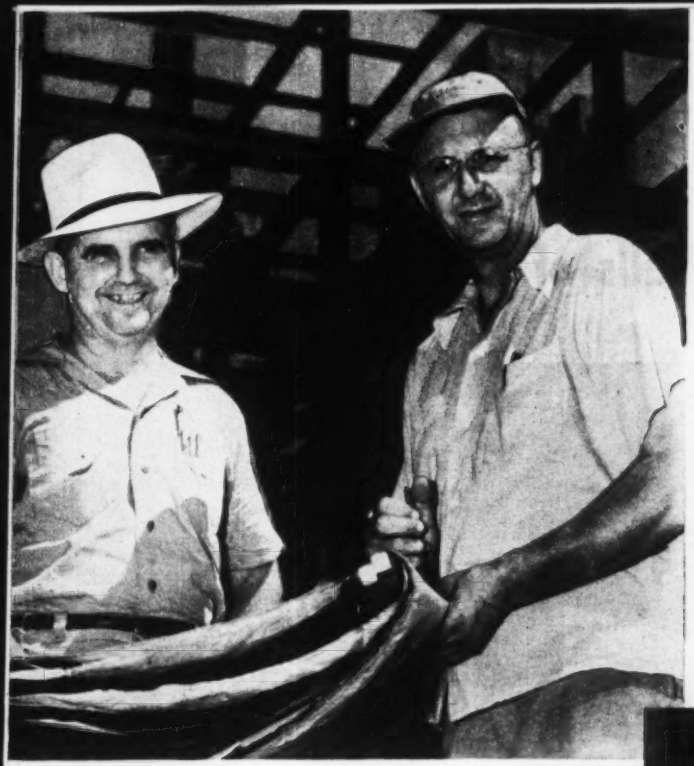
• **The better job**—Ervin Eckert, street commissioner at Crestline, Ohio, whose post pays $3,180 a year, is resigning, so he can accept a street laborer's job. Village Solicitor John Burger ruled as illegal council's action in voting a pay boost for Eckert, who now will get $1.50 an hour working as a laborer. Working a 48-hour week without overtime, he will receive $3,744 a year in his laborer's job.

• **Profitable irrigation**—Possibility of irrigating a 46,000-acre tract of land in southeast Washington state near Walla Walla is being investigated by the U. S. Bureau of Reclamation. Studies are being made to determine feasibility of a plan to pump water from the lower Walla Walla River, which will be backed up approximately 7½ mi. by McNary Dam, into a canal following the river between Wallula and Gardena Terrace, almost to the Oregon state line. Preliminary studies indicate the need of a pumping station at Wallula, to provide a 300-ft. lift, and of another opposite the Gardena Terrace tracts to lift water an additional 150 ft. Nearly 25,000 of the 46,000 acres would be new land with the remainder to be given additional water to enable shift from alfalfa to sugarbeet production, said Boyd-Austin, area planning engineer for the Bureau.

• **Man-made peninsula**—A $10,000,000 park, beach and small boat harbor project at Buffalo, N. Y., entered its second phase recently as a large fleet of dump trucks began unloading fill to create a man-made peninsula 140 ft long and 580 ft wide for the mooring of small boats. More than 550 tons of dirt was unloaded from 60 trucks in the first few days. Well over a million tons will be needed to complete the peninsula, located 1,000 ft south of the Fuhrmann Blvd.–Ohio St. intersection. Cost of this phase is estimated at $94,000. When complete, the mile-long waterfront area will include a public park half a mile long and 1,000 ft wide at the southern extremity, the small boat harbor of similar size, at the northern end, and a mile-long beach on the west side of the project, facing the lake. Plans for beach and park are still in the drawing stage.

• **Unlucky 13th**—A District of Columbia zoning regulation has prevented finishing two-thirds of the top floor of the new Wyatt office building at 14th and H streets. The building consists of 12 floors above ground and a 13th floor which has been the cause of a controversy. Zoning regulations say the building may be 130 ft high, but it is also limited to 12 floors in addition to basement and mezzanine levels, the mezzanine to cover not more than one-third the area of a full floor. District Building officials have stood firm for more than a year in refusing to permit Joseph W. Wyatt to finish more than one-third of the top level. Building plans call it a mezza-

(*Continued on page 12*)



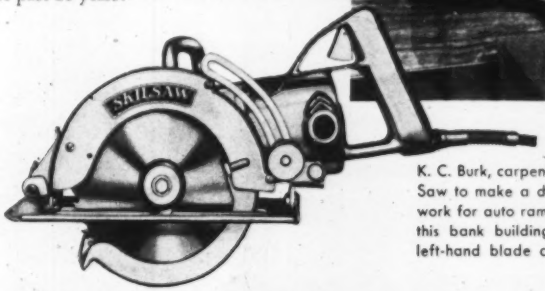
"We've used SKIL Saws for 20 years ...best all around!"

says **Mr. A. O. Reine**
construction superintendent of the
TELLEPSEN CONSTRUCTION COMPANY
Houston, Texas

Mr. Reine (right) interrupts his discussion with C. H. Graham of this construction firm to say, "We choose SKIL Saws for our construction work because they have the right r.p.m.'s for all-around work. SKIL makes all cuts with minimum effort and time." He adds, "Take this current project. With four SKIL Saws we will complete this six-story bank building on a record schedule. It has required cutting 1,200,000 board feet of lumber in 300 working days. In our book, SKIL delivers top performance. And that means for the past 20 years!"

SKIL Saw Model 77

One of the 10 models. 7¼" saw. Full base adjustments for 0" to 2⅜" vertical depth of cut; 0° to 45° bevel adjustment. 1¾" depth of cut at 45°. 3200 r.p.m. no-load speed. Over-all length: 17¼". Weight: 15¾ lbs.



K. C. Burk, carpenter, here uses a Model 77 SKIL Saw to make a difficult cut in the concrete form work for auto ramp to interior parking section of this bank building. "Only SKIL Saws with the left-hand blade could make this cut!", he says.

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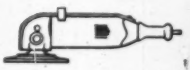
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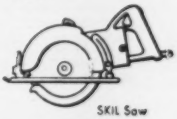
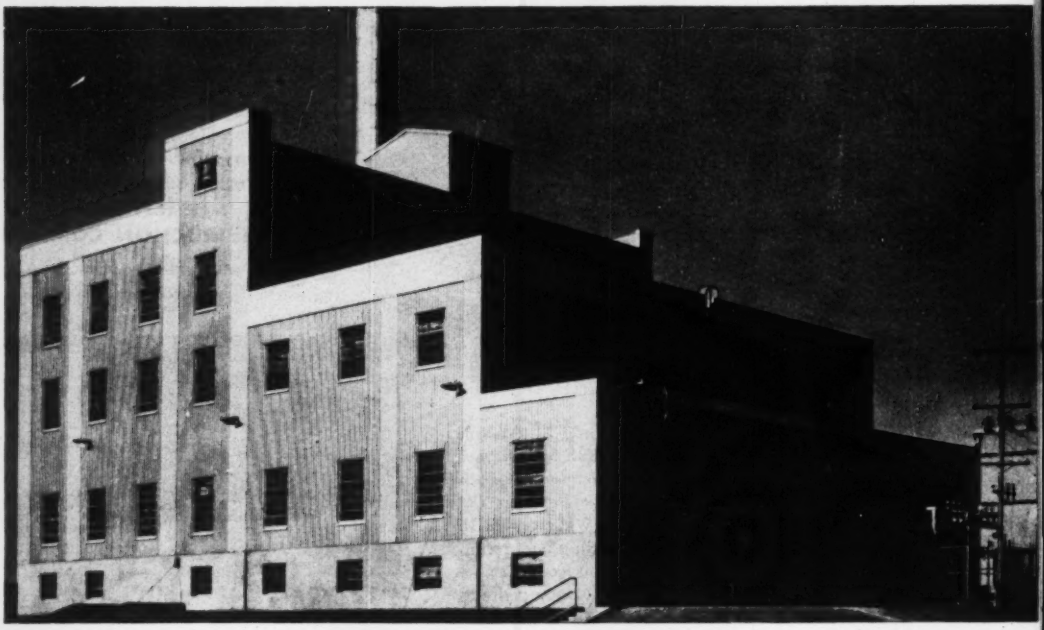
SKIL Belt Sander


SKIL Saw

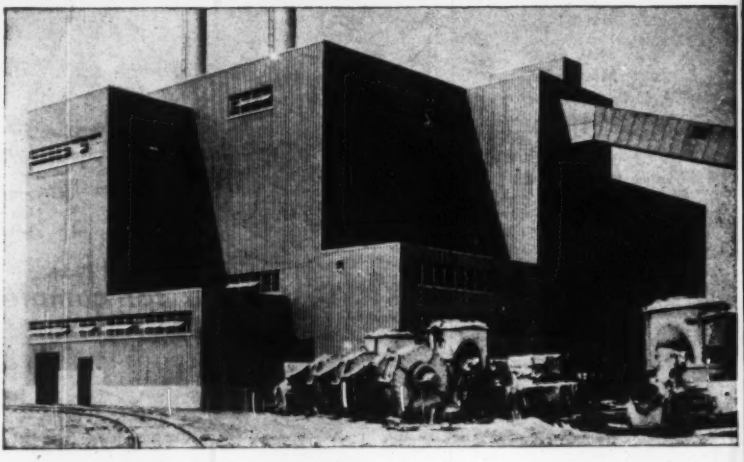
SKILSAW Factory Branch Offices in 34 principal cities — In Canada: Skiltools, Ltd. 3601 Dundas Street West, Toronto 9, Ont.

Available for your

Walls of Stainless Steel offer



▲ 21,000 sq. ft. of Stainless Steel were used in the walls of this new power station built for the Northern States Power Company, Minot, N. D. Designed by Pioneer Service and Engineering Company, Chicago. Wall materials were fabricated and erected by The R. C. Mahon Company, Detroit, Michigan.



➤ William J. Neal Station was erected last winter with temperatures ranging from 10° above to 50° below zero for Central Power Cooperative, Inc., Voltaire, N. D. Erection of 44,900 sq. ft. of Stainless Steel walls presented no difficulty even in such low temperatures. Designed by Vern E. Alden Company, Chicago. Wall materials were fabricated and erected by The R. C. Mahon Company, Detroit.

current projects...

economy and long life for power plants and other industrial buildings

● *It may be news to you* that Stainless Steel is available today for use as a wall material for power plants, warehouses, mills, factories, and other types of industrial buildings.

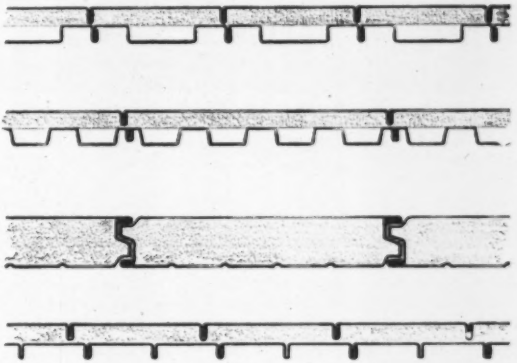
Shortages of certain alloying elements, notably nickel, have greatly limited supplies of some Stainless grades. But straight-chromium grades, including U·S·S 17 (Type 430) and U·S·S 12 (Type 410), are relatively plentiful and are well suited to this type of architectural application. In fact, three new multi-story office buildings in Pittsburgh's impressive Gateway Center are being built with exteriors of Type 430 Stainless.

As a result, you have at your immediate disposal all the advantages of Stainless Steel wall construction —simplified construction, minimum cost-per-year in maintenance and clean, modern lines.

The strength and durability of Stainless Steel, combined with its exceptional corrosion resistance, make it a truly permanent building material. When you spread its original cost over the life of the building and take into account the almost complete freedom from maintenance, cost-per-year is astoundingly low. And the first cost of this construction is often lower than that of masonry walls.

Erection is simple with panels in interlocking sections 12 to 24 inches wide. Insulation to meet any building code requirement is applied to the panels before erection, giving you an extremely low heat transmission coefficient. United States Steel does not sell fabricated Stainless Steel panels. It supplies Stainless Steel sheets to panel manufacturers for fabrication in a variety of forms. But we will be glad to furnish you with details on this type of construction and refer you to leading panel manufacturers for additional information. Use the coupon at right.

Typical cross-sections of insulated Stainless Steel walls of various wall manufacturers



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*☐ Please arrange to have your customers send me literature on their particular type of Stainless Steel roof and wall panels.

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In the days when horsepower had four legs and was fueled with oats, drivers did not steer vehicles. They guided the team and the animals supplied the work of turning.

Today, with trucks, buses and materials handling equipment many times heavier than any horse-drawn vehicle, the driver too often has to supply the physical effort. The power to turn must come from his arms, shoulders and back.

He's doing part of the work that used to be done by horses. No wonder he tires and loses efficiency. It takes a lot of work to herd a vehicle that has heavy loading on the steering axle.

It's hardly progress to eliminate the horse and then do some of his work.

Vickers Hydraulic Power Steering doesn't give that work back to the horse—it gives it back to horsepower. It takes the work out of steering . . . requires no more effort than a "flick of the reins". Wheeling a vehicle around is much less tiresome, so, naturally the driver can do his job better and with greater safety.

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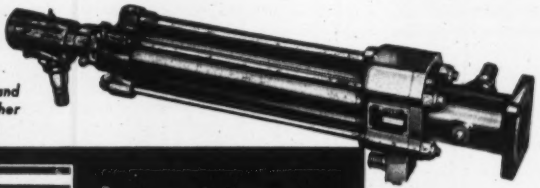

Ask for Bulletin 47-30a and data sheet #120397 for further information on these units.

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More Production... at LESS COST

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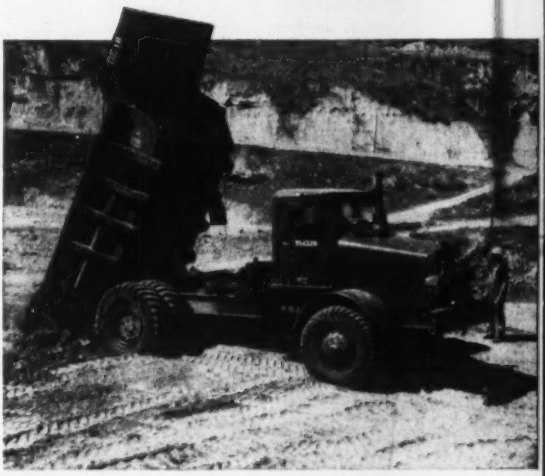
There is a Euclid model for every off-the-highway hauling requirement. Rear Dump "Eucs" of 10 to 34 ton capacity have travel speeds up to 36.3 m.p.h. and are powered by diesel engines of 125 to 400 h.p. Bottom-Dump Euclids range in capacity from 13 to 25 cu. yds., have top loaded speeds up to 34.4 m.p.h., and diesel engines of 190 to 300 h.p.

The Euclid Scraper has proved its dependability and efficiency on the construction of roads, levees, airports and in open pit mining. The Euclid Loader, teamed with the Euclid Bottom-Dump, has set records for low cost earth moving on a wide range of jobs.

You get more production at less cost with Euclids. Call your Euclid Distributor for help with your off-the-highway hauling problems, or write for information on the complete line of Euclid equipment.



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Schield Bantam Back hoe speeding excavation of sewer and water lines for new Tuberculosis Hospital in Vancouver, B. C.

. . . Says Holmes & Wilson Trucking Co. LTD.

Because of its low initial cost—plus high speed mobility on rubber—this versatile new Schield Bantam excavator is proving a highly profitable investment for Holmes & Wilson Trucking Co. Ltd., Vancouver, B. C. So profitable, in fact, that H & W has already ordered a *second* machine.

Mounted on a rugged GMC 6x6 truck, the Schield Bantam quickly handles dozens of scattered digging, loading and stockpiling jobs . . . recently averaged *250' of 2' to 4' trench per hour* working in blue clay, rock and hard pan . . . has required only one brake relining in 10 months of steady operation. What's more, H & W operators agree, "it's the simplest, easiest-running machine in the field . . . works lots of spots where bigger heavier rigs can't go." Let us prove it on your *jobs!*.

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SCHIELD BANTAM

GETS MORE JOBS DONE

News briefs . . .

nine, and under zoning regulations it can't be anything more. Robert O. Clouser, District Director of Planning said. Wyatt and George H. Riggs, one of the building's architects, called the zoning requirement "outmoded."

• **Trans-Canada Highway**—Since April 1950, contracts totaling $23,200,000 have been let on Ontario's 1,412-mi. portion of the Trans-Canada Highway. However, shortages of essential materials are slowing the work so that only five new contracts totaling $2,490,000 have been let this year.

• **Big bridge income**—During the first full month of operation the Delaware Memorial Bridge received about $557,000 in fares, as motor vehicles make a total of 619,332 crossings. During the first full 31-day period an average of 19,976 vehicles crossed the bridge in each 24 hours.

The Cover

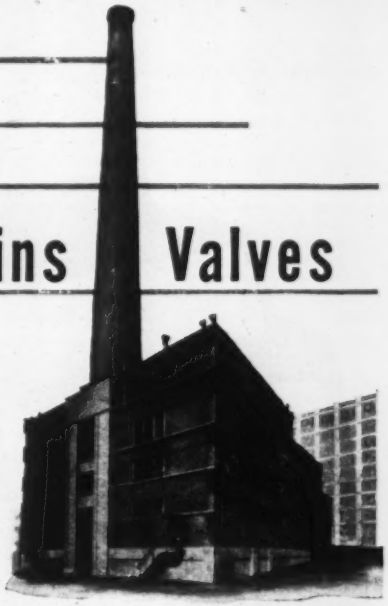
Two weeks ago when Carlton S. Proctor became the 1952 president of the American Society of Civil Engineers, he assumed the job of cleanup man on a team of presidents that has for four years been planning next year's celebration of the Society's 100th birthday. His will be the exacting task of completing the planning and acting as the centennial's presiding officer. Each of his predecessors in turn has built the framework which Proctor now must clothe.

Back in 1948, President Richard E. Dougherty, chief engineer of the New York Central Railroad (not shown in our cover picture) appointed Malcolm Pirnie, New York consulting engineer, chairman of a centennial planning committee. That was the start. Mr. Pirnie, at the beginning of the line of succession on the cover, is followed (left to right) by Franklin Thomas, 1949 president and dean at California Institute of Technology; Ernest E. Howard, 1950 president and Kansas City consulting engineer; Gail A. Hathaway, 1951 president and special assistant to the Army Chief of Engineers; and Mr. Proctor, 1952 president and New York consulting engineer.

The centennial, to be held in Chicago next summer, will reach a climax Sept. 3-13 with a great convocation of all the principal engineering societies of the country and some from abroad. Throughout the year the celebration will be tuned to the eyes, ears and emotions of the layman, that he may appreciate better what engineered progress in a free enterprise economy means to him.

Power House and Process Piping at new 60-acre Pfizer Plant equipped for years ahead with

Jenkins Valves



General Contractors, W. J. BARNEY CORP. Piping Contractors, J. H. MERRITT CO.

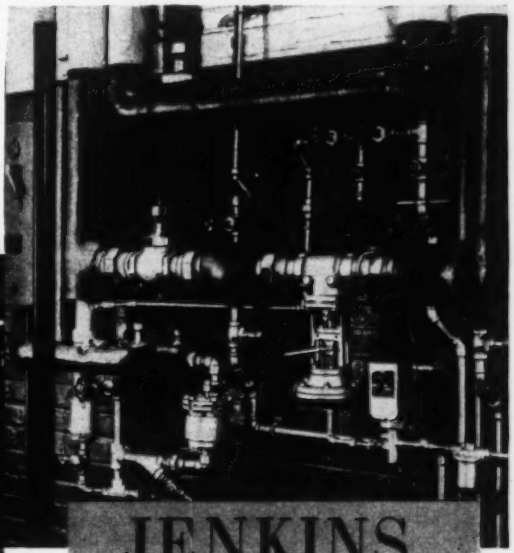
At Groton, Connecticut, the new plant of Chas. Pfizer & Co., Inc., provides additional capacity to meet mounting demands for this company's fine chemicals and antibiotics.

In Pfizer's continuous process manufacture of these products, the dependability of the heat and power supply is vital. That is why you'll find Jenkins Valves in the new power plant, and, in fact, throughout the intricate network of process pipelines.

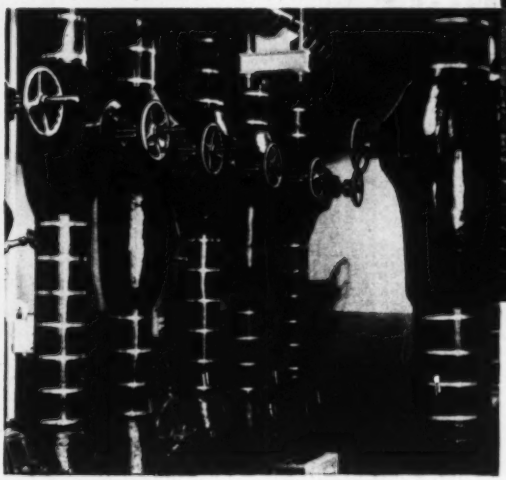
Because the power demand is endless, it requires—even in normal times—unfaltering efficiency of all component equipment. And because operating economy depends on *continued* efficiency in the years ahead, Jenkins Valves have long been the choice of the men who plan, build, operate, and maintain the nation's vital power installations.

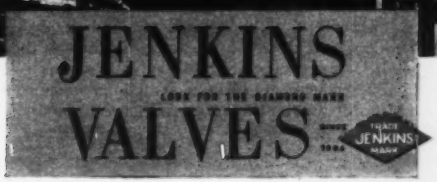
They know that Jenkins builds *extra* endurance into valves. Yet despite this *extra* value, *you pay no more* for Jenkins Valves. For new installations, for all replacements, let the Jenkins Diamond be your guide to lasting valve economy. Jenkins Bros., 100 Park Avenue, New York 17. Jenkins Bros., Ltd., Montreal.

Some of the Jenkins Valves installed in the Pfizer power plant. Its rating is 230,000 lbs. per hour from two oil-fired boilers.



Large Jenkins Gate Valves on pipelines serving the 12-step Pfizer process of synthesizing a stable form of crystalline Vitamin A, the first produced on a commercial scale.





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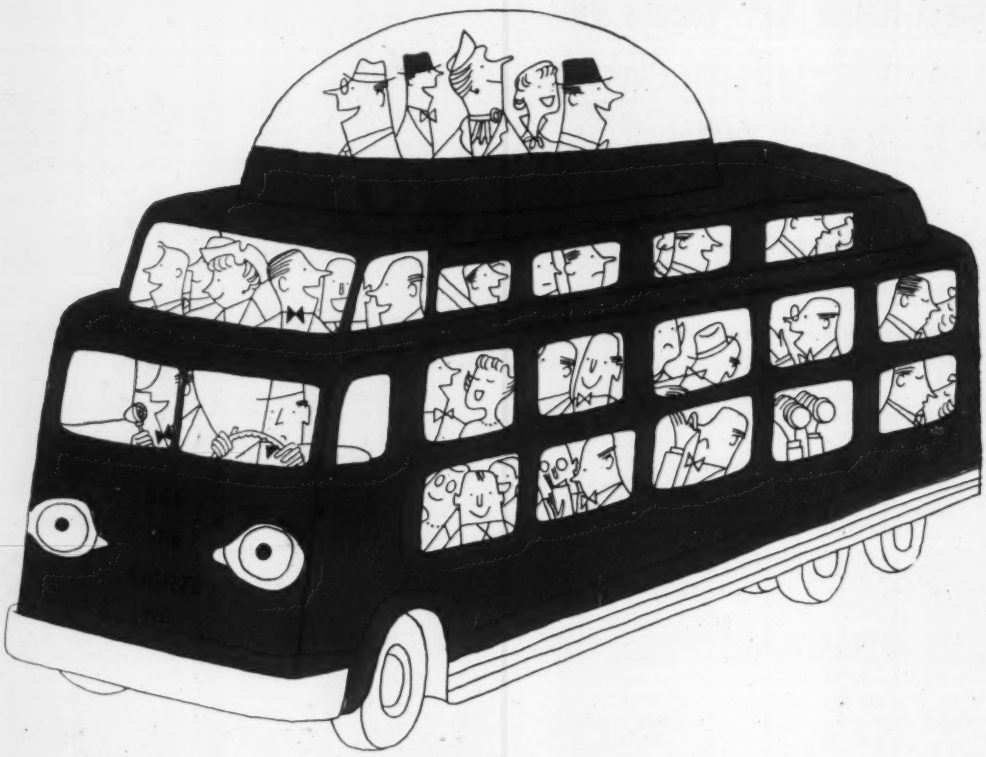

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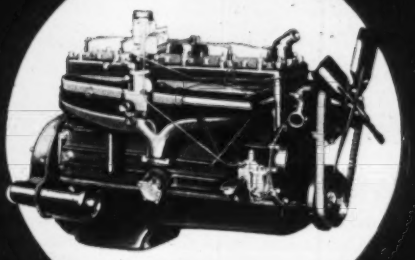

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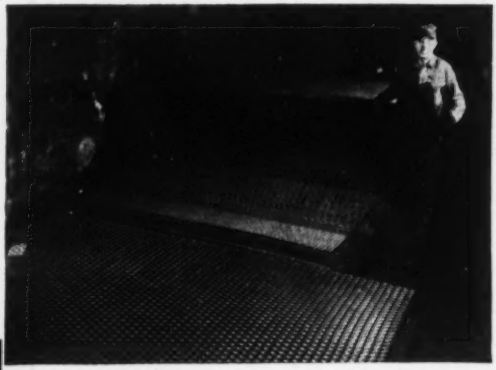

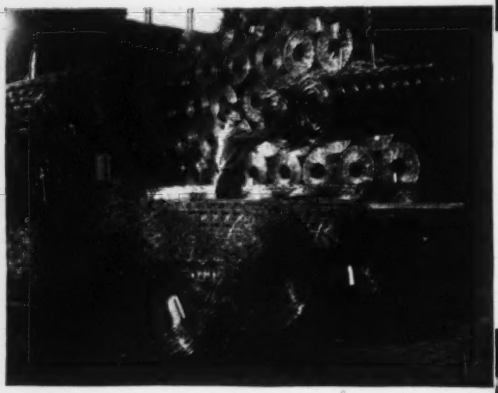

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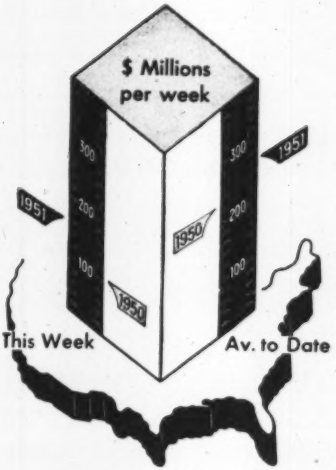
THE CONSTRUCTION WEEK



Contracts by type of work

	This Week	Cumulative 45 wks 1951	1950	% chge
Waterworks	$1.6	$180.0	$194.8	−8
Sewerage	11.1	284.6	249.8	+14
Bridges	5.3	283.5	327.8	−14
Highways	19.3	1,039.2	1,093.3	−5
Earthwork, Waterways	5.8	446.6	348.7	+28
Buildings:				
Public	17.2	1,898.9	1,462.9	+30
Housg., pub.	5.2	583.1	276.0	+111
Housg., priv.	46.5	1,722.9	2,828.1	−39
Commercial	2.2	544.1	854.2	−36
Industrial	29.4	3,664.4	1,408.6	+160
Unclassified	15.9	1,472.4	1,172.3	+26
Total	**$159.5**	**$12,120.7**	**$10,216.5**	**+19**

NOTE: Minimum size projects included are: Waterworks and waterway projects, $34,000; other public works, $60,000; industrial buildings, $82,000; other buildings, $300,000.

ENR COST INDEX

Index Base = 100		1913	1926	1949
Constr. Cost	Nov. '51	547.16	263.01	114.70
Bldg. Cost	Nov. '51	404.50	218.66	114.98
Volume	Oct. '51	511	208	148

IN THE FAMILY—Mindful of public reaction to such bickerings, CIO union leaders have signed agreements barring all jurisdictional disputes within the organization. They put teeth in their agreement too—in the form of a contract signed by all 41 international unions and CIO itself, binding signers to submit disputes to adjustment machinery, and to obey decisions made by an impartial arbitrator. CIO attorneys said that the parent organization could thus sue any recalcitrant union for failure to abide by provisions. Observers pointed to a significant background fact: CIO's industrial-union setup would make such a sweeping outlawing of jurisdictional fights a lot easier than does AFL's crafts organization; what CIO worries most about is possible loss of bargaining rights as result of competition between CIO groups.

APHA DISCUSSIONS—Cause and possible solutions for the shortage of trained sanitary engineers were topics at the engineering session of the American Public Health Assn. convention in San Francisco last week. Said Consulting Engineer S. T. Harding, "The most effective way to recruit engineering students will be a general recognition of the value of the engineering services and a willingness to pay proper remuneration to secure such services."

Other thoughts: A. E. Greenberg and Harold B. Gotaas, University of California, reported that reclaiming water from sewage plant effluent by spreading is economically sound and is safe from a health standpoint. Still needed is a satisfactory basis for design of sewage spreading ponds.

DEFENSE LOW—As President Truman signed two supplemental appropriations bills carrying funds for mobilization activities last week, he branded them "tragically insufficient." One bill provides $75 million for civil defense—he had asked $535 million. The other gives $4 million in aid for community facilities such as schools, sewerage, and water systems—he had asked $25 million.

WAR DRUMS—The Great Lakes-St. Lawrence Seaway Association held a get-tough-with-Congress meeting last week in Detroit. Delegates from Michigan, Minnesota, Wisconsin, Illinois, Indiana, and Ohio began beating the drums to force action at the next congressional session on the big Canadian-American power and navigation project. They heard speakers warn that continued economic prosperity of the midwest depends on opening the seaway.

MORE FLOOD RESERVOIRS—News that Corps of Engineers' plans for the Kaw River Basin in Kansas have been augmented by about 1 million acre ft of storage is interesting but not too significant. The plans already include 3.5 million acre ft in five reservoirs that Congress has authorized but appropriated no money for.

WINS ROUND—The Interior Department's Rural Electrification Administration won the latest round in its fight with Kentucky Utilities Co., last week as the Circuit Court upheld an order permitting it to start construction of a $30-million generating and transmission system near Ford, Kentucky. The decision sustained a Public Service Commission order favoring REA, which was appealed by East Kentucky Utilities. There is more to come, however. Kentucky Utilities already has been granted an appeal.

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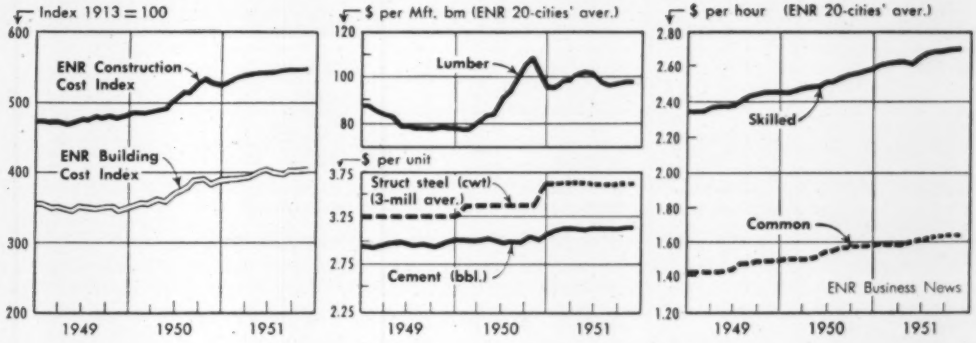
NOVEMBER CONSTRUCTION SCOREBOARD



ENR INDEXES (1913 = 100)	Nov. '51	Oct. '51	% Change	Nov. '50	% Change
Construction Cost	547.16	546.51*	+0.01	529.21*	+ 3.4
Building Cost	404.50	403.43*	+0.2	390.21*	+ 3.7
MATERIAL PRICES (20-cities' average)					
Cement, bulk, per bbl	3.168	3.168	0.0	3.059	+ 3.6
Structural Steel, (3-mill aver.), per cwt	3.650	3.650	0.0	3.400	+ 7.4
Sand, per ton	2.089	2.089	0.0	2.009	+ 3.9
Lumber, 2x4 Fir, per M. ft. bm	107.222	106.833*	+0.4	109.500*	− 2.1
Lumber, 2x4 Pine, per M. ft. bm	91.683	91.333*	+0.4	95.733	− 4.2
Common brick, per M	31.101	31.101	0.0	29.575	+ 5.1
Ready-mixed concrete, per c. y	10.905	10.880	+0.2	10.612	+ 2.7
Structural Clay Tile, 3x12x12 per M	151.123‡	149.850‡	+0.8	136.460‡	+10.7
WAGE RATES (20-cities' average)					
Common	1.646	1.645	0.0	1.574	+ 4.6
Skilled (aver. 3 trades)	2.728	2.719	+0.3	2.571	+ 6.1
Bricklayers	3.025	3.012	+0.4	2.838	+ 6.6
Structural Ironworkers	2.683	2.669	+0.5	2.524	+ 6.3
Carpenters	2.479	2.477	+0.08	2.352	+ 5.4

CONTRACTS AWARDED (thous.)	October 1951	October 1950	% Change	Ten Months 1951	Ten Months 1950	% Change
Total U. S. (ENR reported)	$1,026,973	$950,526	+ 8.0	$11,751,415	$9,914,942	+ 18.5
Private	653,378	576,492	+ 13.3	6,297,726	5,802,890	+ 8.5
Public	373,595	374,034	− 0.1	5,453,689	4,112,052	+ 32.6
Federal	111,341	79,092	+ 40.8	2,037,658	1,012,295	+101.2
ENR Constr. Volume Index, '13 = 100	511	470	+ 8.7	546	487	+ 12.1
NEW CONSTRUCTION CAPITAL						
Total	5,166,081	514,643	+903.8	14,161,153	7,537,558	+ 87.9
State & Municipal Bond Sales	331,935	177,437	+ 87.1	2,820,476	2,359,925	+ 19.5
Corporate Security Sales	92,753	337,206	− 72.5	1,872,838	1,826,539	+ 2.5
Federal (non-federal work)	743	.....	.....	152,316	522,000	− 70.8
Federal (federal work)	4,740,650	.....	.....	9,315,523	2,829,094	+229.3

MATERIAL SHIPMENTS & LABOR SUPPLY	August (A) September (S) 1951	1950	% Change	Eight Months (8) Nine Months (9) 1951	1950	% Change
Cement, thous. bbls., Bu. of Mines	25,852(A)	25,144(A)	+ 2.8	162,121(8)	148,443(8)	+ 9.2
Fabr. Struc. Steel, thous. tons, AISC	229(S)	199(S)	+15.1	2,044(9)	1,657(9)	+23.2
Lumber, mil. ft. bm., NLMA	3,231(A)	3,758(A)	−14.0	25,602(8)	26,366(8)	− 2.9
Lumber Prod., mil. ft. bm., NLMA	3,584(A)	3,950(A)	− 9.3	26,709(8)	25,612(8)	+ 4.3
Contract Constr. Employ., thous. BLS	2,703(S)	2,626(S)	+ 2.9	(Av.) 2,537(9)	(Av.) 2,245(9)	+13.0

‡ 1 City missing. *Revised

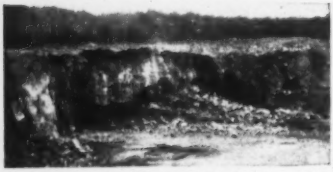
Just before the blast.

The holes begin to fire . . .

and the blast progresses . . .

across the face . . .

without spurts of wasted gas.



A well-shot pile!

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Water policy maneuvers

NATIONAL WATER POLICY came into the limelight again for a brief period at the recent ASCE meeting. The chief conclusions to be drawn from what was said and done at that time is that the engineers of this country should take a much more realistic approach to the writing of a national policy than they are taking at the present time if they wish to play an important part in determining what the policy shall be.

President Truman named his National Water Resources Policy Commission early in 1950. Shortly thereafter, in response to a general request from the commission, Engineers Joint Council submitted the findings of its Water Policy Panel, which had been studying the subject for two years.

Late in December, 1950, the President's commission submitted its findings. They were quite similar to the findings of the EJC panel in many respects. On the subject of determining the justification for a particular project, the commission's recommendations were more liberal than those of the EJC panel, but not as open-handed as many members of Congress and of the Roosevelt and Truman administrations would like Congress to be. Also, the commission did not lay as much emphasis on the need for local responsibility as did the EJC panel.

Early this year the President's commission sent to him the draft of legislation to give effect to its recommendations. For some unstated reason the President has suppressed it. One can surmise that it is too conservative, too close to what the EJC panel would like and does not propose to centralize all control of water resources in Washington or in river basin authorities. So the President has shelved the proposed legislation in the hope that Congress and the public will forget the fanfare with which he set up the commission. At some future date he can send to Congress legislation establishing a national water policy more to his liking.

At the ASCE meeting, W. W. Horner, chairman of the EJC panel, said that current EJC strategy is to seek modification of the recommendations of the President's commission and then work for their adoption. That sounds like a good plan; but recent EJC action does not conform to it.

First, EJC sent a letter to all Congressmen suggesting that Congress set up "a special joint committee or a commission which should be charged with the duty of coordinating" all the various proposals made to Congress into "an overall statement of national policy." Appointment of a joint committee of Congress or a new commission to consider all the proposals made to Congress would appear to be right in line with the thinking of those who got President Truman to suppress the carefully drawn legislation of his Water Resource Policy Commission. That legislation is not yet before Congress and so could be ignored.

To implement Mr. Horner's plan, EJC should ask Congress to get President Truman to let it have his commission's recommendations.

Even more completely out of line with the strategy proposed by Mr. Horner is EJC's latest criticism of the report of the President's commission, which was distributed at the ASCE meeting in the form of a printed "critique." This statement departs from the reasoned and dispassionate tone of the original EJC panel report, is inaccurate in some of its accusations—relative to river basin authorities for example—and in general lowers the level of discussion to emotion rather than reason. Such an approach is not realistic.

Engineers Joint Council is justified in its fear that a national water policy may be evolved that is not in line with sound economic principles. Nevertheless, it does not appear probable that a national policy better than that stated in broad general terms by the President's commission will be laid before Congress by the President's politically powerful advisers if they succeed in suppressing the legislation proposed by the commission. Under such circumstances it would appear that EJC should concentrate on getting that legislation before Congress for public consideration. Attempting to get Congress to start anew on something better only gives the extremists among the opposition the opportunity that they are angling for.

Inflation pressures still present

FREQUENT STATEMENTS that the cost rise in construction has been arrested do not mean that inflation dangers are over. As a matter of fact, the principal support for the statements rests on the same statistics that show that costs are continuing upward. What has happened is that the rapid rise has been reduced to a slow and halting one.

During 1949, for example, the ENR construction and building cost indexes moved in a very narrow range. Cost stability actually characterized 1949. But in 1950 the indexes jumped about 11%. That was rightly regarded as inflation. So far this year the indexes have risen another 3%. That too is inflation even though it may be of a milder variety.

The important point to note is that inflationary pressures are still present—particularly in wages where increases not only affect payrolls but material prices as well. These pressures might well cause another 5 percent rise in the construction cost indexes by next summer. Shortages, overtime and other emergency conditions could cause actual costs to rise even farther. These possibilities should be planned for. Inflation is far from licked.

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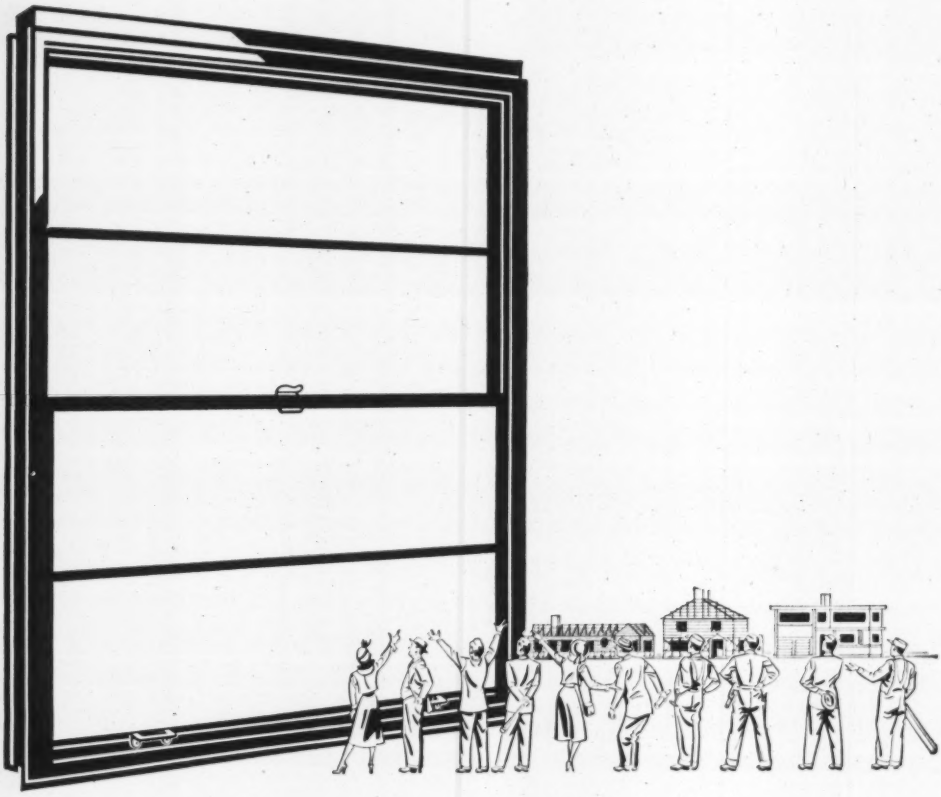

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ENGINEERING NEWS-RECORD

NOVEMBER 8, 1951 VOL. 147 NO. 19

AEC labor crisis heads for showdown

Congress probing construction jobs slowed by strike toll of over 600,000 man-hours

WASHINGTON—The wild series of strikes and counter-strikes, jurisdictional disputes, charges of waste, overpayments to labor, pirating, inefficiency, that have plagued construction of U.S. Atomic Energy Commission installations over the past year now appear to be heading up to a solution.

Key developments last week were:

• A subcommittee of the House Labor Committee opened hearings at Augusta, Ga., on labor conditions at the billion-dollar Savannah River AEC project;

• Chairman Gordon Dean of AEC announced his deep concern through a set of statistics showing a loss of more than 600,000 man-hours of construction labor at two of AEC's installations;

• The American Federation of Labor was still trying to set up a top level conference on labor relations with AEC—over the heads of the individual contractors and local labor union leaders who have been handling negotiations up to now. (It had already moved for such a top-level solution at Paducah.)

And, while these developments moved toward some sort of solution, still another strike—the 22nd—broke out at Oak Ridge, where electricians, plumbers and painters were out over what AEC called "unrelated" jurisdictional disputes.

• **Curious Congress**—The formal investigation at Augusta will be the first official cognizance taken of the situation by a Congressional group—although the general question of labor matters on AEC work has already come in for some off-the-record personal investigation, as well as on-the-record comment on the floor.

The subcommittee was named by Rep. Graham A. Barden of North Carolina, committee chairman, who also disclosed that a committee investigator, disguised as a laborer, had already visited the Savannah River plant site to obtain preliminary information.

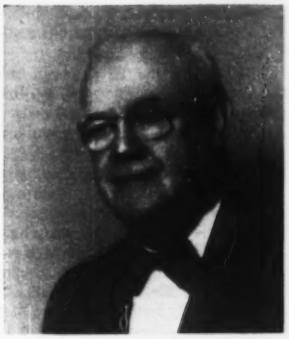
Only recently (ENR Oct. 11, p.88) another Congressman—Rep. W. M. Wheeler of Georgia, reported on the House floor that he had personally donned overalls and prowled the Savannah River site in search of work, and had been informed of what he called exhorbitant initiation fees, job permits and the like. AEC spokesmen at that time discounted the charges, said they would "welcome" an investigation.

• **The losses**—Chairman Dean's figures on loss of time at numerous AEC sites were startling enough for most Congressmen.

Said Dean: At Paducah (gaseous diffusion plant) eighteen strikes (up to the time of his report) had cost 495,000 man-hours of work; at Dana, Indiana (a special chemical plant), man-hour losses totalled 156,500 in 11 strikes. And there had been other work stoppages—with similar huge man-hour loss totals—at Oak Ridge, Alamogordo, Arco and other installations.

Dean's blast (contained in a telegram to unions and contractors expressing AEC's concern and urging settlement of disputes by "established procedures") forced into the open some disagreement and misunderstanding that has been smouldering behind the scenes on the problem of handling wage controls and other disputes that have affected AEC construction work.

Gordon Dean
Chairman, Atomic Energy Commission



Richard J. Gray
Building trades spokesman

It brought an immediate response from Richard J. Gray, head of the AFL's Building Trades Department, and spokesman for the 19 construction unions represented there.

Gray, among other matters, offered to sit down with AEC to work out an overall policy for handling labor on all AEC work.

• **Trouble spot**—Gray actually put his finger on a basic spot in the labor picture—AEC's policy of letting contractors handle labor relations in their own way. Back of this is AEC's expressed desire to let free collective bargaining work as broadly as possible in the atomic energy program.

Both contractors and labor have supported the policy.

What AEC would like, of course, is that construction not be interrupted because of labor disputes. As a matter of fact there has been little interruption for more than two years in the operating plants and laboratories, where the Atomic Energy Labor Relations Panel has been an effective safety valve against strikes involving production.

But the building trades do not consider themselves to be under the panel's jurisdiction—that's part of the general disagreement and misunderstanding.

• **Reasons**—There have been comparatively few jurisdictional disputes at AEC sites. Most of the strikes (some just "quickie affairs" have been over wages or on-the-job grievances. And,

(*Continued on page 24*)

Labor crisis . . .

(*Continued from page 23*)

unless something is done, it is feared the strikes will increase as AEC construction begins to roll full steam.

New AEC construction employment has risen from 19,800 last December to 52,000 in September, and will continue to rise. At Savannah River alone construction employment, now at 18,000, will ultimately reach 50,000.

Most of the construction is in outlying areas. Contractors and workers move in from all over the country, with different labor relations policies and backgrounds.

Couple this influx with the fact that local union leaders in such areas—if there are any—are not as experienced as those in big cities, and you have trouble. Add to it problems of travel pay and normally lower local pay scales and you have more trouble.

• **Complicated handling**—The handling of these atomic construction labor disputes is as complicated as the problems that lead to them.

First there is AEC itself: It tries to stay on the sidelines, but it cannot, because of its prime interest. So it has appointed Oscar S. Smith, formerly of the National Labor Relations Board, to look after any labor relations problems of AEC contractors that come to its attention.

Jurisdictional disputes on construction matters normally go to the construction industry's Joint Board for Settling Jurisdictional Disputes—set up three years ago by AFL and contractors—headed by John T. Dunlap, who is also a member of the Wage Stabilization Board and a member of the atomic labor panel. Generally, this board's record has been good—when it hasn't been able to prevent a strike, it has at least been able to end it quickly.

But some labor disputes not involving jurisdictional matters have gone before the atomic labor panel—a group of public members only headed by William H. Davis. This panel was set up in 1948 after a Taft-Hartley injunction expired at Oak Ridge, still leaving a strike possibility.

This panel functions as part of an atomic labor code under which contractors and unions have agreed to utilize the panel's services before interrupting "vital operations" in the atomic energy program. That is the rub insofar as the labor unions are concerned: Gray contends that the building trades unions were not a party to the code, were not asked to sign any pledges, and are not under jurisdiction of the panel.

The panel itself feels it has jurisdiction over those who accept its jurisdiction—and has so far handled six disputes involving construction. Two were settled by acceptance of panel rulings two (at Hanford) are undecided; two more, at Paducah (centering around travel pay) are also not decided.

• **Solution**—One solution is to negotiate a project agreement for each job, covering all the building trades unions and superceding individual union rules. Such an agreement, suggested by Gray, would cover jurisdiction and working rules, as well as provide for uniform pay, travel and other fringe benefits. Work grievances would also be settled.

In fact, Gray has agreed to negotiate such a project agreement with the F. H. McGraw Co. at Paducah, to be applicable to all building trades.

(One complaint at Paducah has been that this contractor's labor relations have been poorly handled—certainly there has been a high turnover in labor relations officers. The latest, Col. Clarence Barker, a retired Army colonel who handled labor relations for the Corps of Engineers and for General Electric at Hanford, is looked to for improvement.)

• **Seeks panel**—The Paducah agreement probably will include machinery for settling work grievances without stoppages. But Gray has asked a special atomic construction panel to settle any disputes arising in negotiating the contract or its renewal.

AEC isn't particularly happy with this last thought—it doesn't want any more special panels than it now has, feels that the existing panel under Davis can handle the matter.

Col. Clarence Barker
New labor head for F. H. McGraw Co.

AEC is pondering these questions: Should it make a policy ruling to the effect that area practices (now in force) will not be controlling where project agreements are made (and that would take some consultation with the Wage Stabilization Board); should it encourage project agreements at all?

This much, say observers, would result from either of the AEC alternatives: Project agreements would at least contribute to stability on the construction site.

DPA seeks aluminum to replace copper

WASHINGTON—The copper shortage may cause the Defense Production Administration to boost the nation's $500-million aluminum plant expansion program, Administrator Manly Fleischmann has disclosed.

The present 90% expansion will bring aluminum capacity to nearly 1.5 billion lb a year by the end of 1953, but Fleischmann said more may be needed as a substitute for critically scarce copper.

"Copper is the worst long-range problem we face as a nation," he said. "Looking beyond the present mobilization, copper always will be a bottleneck in any future emergency."

He also said the Defense Materials Procurement Administration is dickering with "two or three" companies which may build new aluminum plants. The Harvey Machine Co. proposal to build an aluminum plant at Kalispell, Mont. and an aluminum plant in Washington state, held up by defense loan and tax-aid delays, is being re-examined.

Three other DPA moves were outlined:

• **Consumer goods** will be cut to about 10% of their pre-Korea usage of copper and 15% to 20% of normal aluminum supplies starting Jan. 1. This will hit not only items like copper ashtrays, but products like aluminum windows.

• **Action**—Favorable or unfavorable—will be taken this week on appeals for more steel to construct schools, highways, hospitals and other projects. But, Fleischmann warned, "So far I have not been able to invent more steel."

• Britain may agree to furnish some desperately needed structural steel in return for some 800,000 tons of steel in other shapes she has requested.

Talks have been held with British officials, Fleischmann said, and the possibility of giving them some high-priced ingots mostly from west coast producers is being considered.

Fleischmann also predicted the structural steel shortage will ease after the middle of next year.

Forecasters gaze into crystal ball for 1952 construction predictions

WASHINGTON—Our national "guns and butter" program for next year will support a $27-billion construction volume in 1952. By comparison with 1951, that volume would mean a cut of less than 10% below the $29.5-billion total for this year.

That is the picture for 1952 building as some of the best informed mobilization people see it—provided the cold war doesn't blow hot.

Over all, construction won't have to take too big a cut. But when looking at single programs in the construction framework, the picture is very uneven. Some types of building are due to increase; others, to shrink.

• **Double load**—The unevenness ties back to the national plan for a balanced economy that will serve both civilian and security needs. In the build-up period, the strain of carrying the double load is particularly severe. Government controls relieve some of the stresses. But they make things tough for some branches of the building business.

Materials and not money will set the construction pattern in 1952. The controls machinery will continue to channel scarce metals and components to the projects that are needed first. But the controls administrators cannot be completely clear of political considerations. Citizens can still put pressures on their government. Under our system such pressures are both necessary and desirable.

• **Forecast made**—Those facts must be considered in forecasting materials allocations for next year. The program allotment will determine the volume of construction in each category of the building business next year.

In overall dimensions, the estimated future expenditures are regarded as sound. But individual categories the pattern will show variations. They will come partly from new developments in the defense program, partly from fresh looks at the relative importance of civilian programs competing with them.

• **Lift seen**—As things shape up now, industrial construction—both private and public will go to even higher levels than this year. But some so-called civilian programs—notably housing and highways—will suffer still further deep cuts.

Forecast of new construction activity in the U. S.

(Million Dollars)

Type of Construction	Totals 1951	Totals 1952	Quarters 4 (1951)	Quarters 1 (1952)	Quarters 2	Quarters 3	Quarters 4
Total New Construction	29,500	27,000	7,105	5,580	6,595	7,795	7,030
Private Total	20,325	16,500	4,700	3,530	3,930	4,675	4,365
Residential (Non Farm)	10,550	8,425	2,472	1,812	1,941	2,366	2,306
New Dwelling Units	9,475	7,400	2,230	1,600	1,675	2,075	2,050
Additions and Alterations	895	875	200	177	232	253	213
Non Housekeeping	190	150	42	35	34	38	43
Nonresidential Building	4,800	3,625	961	785	810	990	1,040
Industrial	1,975	2,200	490	450	500	625	625
Commercial	1,250	475	164	100	90	120	165
Warehouses Office & Loft Bldgs	500	225	81	60	45	55	65
Stores, Restaurants, Garages	750	250	83	40	45	65	100
Other Nonresidential Building	1,575	950	307	235	220	245	250
Religious	420	160	72	50	30	35	45
Educational	335	250	77	60	60	65	65
Social and Recreational	155	90	19	20	25	25	20
Hospital and Institutional	410	275	97	70	65	70	70
Miscellaneous	255	175	42	35	40	50	50
Farm Construction	1,250	1,000	291	195	270	320	215
Public Utilities	3,660	3,100	969	728	899	934	789
Railroads	370	390	105	70	80	80	70
Telephone and Telegraph	450	375	94	80	100	110	85
Other Public Utilities	2,840	2,325	770	578	719	744	634
Local Transit	40	35	9	8	9	9	9
Pipelines	177	200	43	40	55	65	50
Electric Light and Power	1,550	1,650	410	340	430	480	400
Gas	1,075	830	308	190	225	240	175
All Other Private	65	50	17	10	10	15	15
Public Total	9,175	10,500	2,405	2,050	2,665	3,120	2,665
Residential Building	625	700	199	180	180	180	160
Nonresidential Building	3,470	3,800	904	850	930	1,025	995
Industrial	1,000	1,800	357	310	460	500	460
Educational	1,475	1,250	344	300	300	325	325
Hospital and Institutional	550	415	132	95	95	110	115
Other Nonresidential Building	445	335	71	75	75	90	95
Social and Recreational	100	70	13	15	15	20	20
Public Administration	185	130	34	30	30	35	35
Miscellaneous	160	135	24	30	30	35	40
Military and Naval	1,000	2,500	375	460	645	760	635
Highways	2,175	1,875	465	215	500	695	465
Sewage Disposal and Water Supply	745	650	185	148	163	173	166
Sewage Disposal	440	380	111	90	95	100	95
Water Supply	305	270	74	58	68	73	71
Publicly-Owned Utilities	205	180	49	37	42	47	54
Conservation and Development	875	725	211	145	190	220	170
Bureau of Reclamation	212	165	47	35	40	50	RP
Army Engineers	490	375	117	70	100	115	90
Tennessee Valley Authority	117	135	35	30	35	40	30
Other	56	50	12	10	15	15	10
All Other Public Construction	80	70	17	15	15	20	20

Storm warnings hoisted for copper shortage

Officials of the National Production Authority say low imports and recent copper strikes are making the copper shortage worse. Even New York City's dock strike is taking a significant toll on incoming copper supplies.

They say the copper situation will remain tight for four or five years. NPA has advised members of the wire and cable industry that although some projects are underway to increase domestic copper production, their effects will not be felt for several years.

Already big construction plans are being delayed by the shortage of wiring. Hardest hit are utilities companies. With record-breaking expansion plans on the books, already individual projects are being held up and others are getting along on a day-to-day basis.

• **Cases cited**—Philadelphia Electric Co. is running "slightly behind schedule" in constructing a substation and running power lines for the new Fairless Works of U. S. Steel Co. near Morrisville, Pa. Public Service Electric & Gas Co., which provides 90% of central New Jersey, says it is working on an "hour to hour basis" with copper wire supplies nearly exhausted.

Work on the Alcova switchyard at Alcova Dam, Southwest of Casper, Wyo., has been stopped due to failure of delivery on copper wire and electrical equipment on allotment priorities. The contract has been terminated and the job will be completed when materials become available.

A large New England power system, with over 350 jobs under way, reports no major jobs have come to a standstill, but considerable delays in scheduled completions are being met.

• **But a few**—These are specific cases, but the situation is a general one. And it extends considerably beyond the utilities industry. Among projects delayed for lack of copper are schools, public and private housing, waterworks, hospitals, and commercial buildings.

Huffman-Wolfe Co., mechanical contractors of Columbus, Ohio, says it has been forced to go to Canada for copper pipe, paying as much as 30% above U. S. ceilings plus taxes, to keep project moving. Sauer Co., Inc., of Columbus, says it has had to accept fans equipped with steel instead of copper fins in order to speed completion of air conditioning and heating for buildings under construction.

Substitutes for copper wiring, tubing, and sheet are being pressed into service on a wider and wider scale. Aluminum and galvanized steel and wrought iron is being used wherever it can be found.

Salary rules changed for engineers

Stabilization Board issues statement of policy recognizing special professional pay problems

WASHINGTON—The Salary Stabilization Board last week decided that engineers' salaries should get special treatment "to correct hardships and inequities" and, at the non-executive level, to compensate for longer hours worked.

Until a specific regulation is issued, relief will be granted on request in individual cases. (ENR Oct. 25, p. 28).

This was one of the last of several "deadline" actions taken before Chairman Raymond B. Allen's resignation became official this week. His resignation will probably delay for some time issuance of the regulation proposed.

Here is the text of the board's statement of policy:

• The Salary Stabilization Board recognizes that engineers subject to its jurisdiction present special problems in relation to the salary stabilization program. The Board, through its representatives, has held a number of meetings with engineering societies, industry representatives and others with a direct interest in these problems.

• The basic problems arise (a) because on Jan. 25, 1951, when stabilization of salaries and other compensation took place, there was frequently a disparity amounting to a substantial inequity between the compensation of engineers of comparable skill and experience, and between newly-employed engineers, on the one hand, and engineers who had been employed for a substantial period of time, on the other hand, and (b) that as a result of the military production program and other factors, there is now a serious shortage of engineers which makes it difficult for some companies to adhere to the general salary stabilization program and tends toward pirating of engineering personnel. The latter consideration presents primarily a manpower problem.

• The Board has given consideration to a possible exemption of engineers employed by engineering firms but came to the conclusion that such an exemption would aggravate rather than help the situation in that it would result in the loss of engineers employed by companies to engineering firms. In trying to cure one problem, another problem of even greater dimensions would be created.

• It is resolved that the problems of engineers should be separately treated under salary stabilization regulations to accomplish the following objectives:

(1) Appropriate adjustments in compensation for engineers should be authorized through general rules which would permit the correction of hardships and inequities, as contemplated by the Defense Production Act of 1950, as amended. The specific terms of such rules are now being developed.

(2) Additional compensation for extra hours worked or for an extended work-week should be permitted for engineers at the non-executive or non-administrative level.

The Board is in the process of implementing this statement of policy through a specific regulation. Until the issuance of such a regulation, companies will, of course, be expected to comply with the general salary stabilization regulations in respect of engineers as well as other employees. In individual cases, however, the Office of Salary Stabilization is hereby authorized to grant appropriate relief upon a showing of inequities of the nature contemplated.

Cement delays hurt Ohio jobs

Cement is squeezing through a tight situation on low supplies in a few areas, as construction pounds ahead to beat the cold weather. Bins near empty in these areas, plants are producing at capacity for day-to-day use and sometimes falling a day or two behind.

Because cement is shipped relatively short distances economically (usually not more than 250 miles from producing plants), it is short in some sections, in comfortable supply in others, and in one or two there is an over supply. On the whole, the picture is encouraging.

As construction slows down during the winter months, cement supplies will improve in the cold weather belt. It will also be improved in widespread sections where new producing plants are under construction.

• **Under strain**—For more than two months now, the cement supply situation in Ohio has grown steadily worse. All cement plants serving the area are working at peak capacity, but their reserves have been depleted, new production is used as fast as it is made, and there is not enough to go around.

Serious delays have occurred in the Youngstown district, where heavy defense demands have strained productions beyond its limits. Contractors building the expansion at Youngstown Municipal Airport and others are having difficulties.

In Columbus, most projects, large and small, have experienced delay in completion of concrete work, but most have been able to keep men busy on another part of the project until cement or ready-mixed concrete arrived. Cement has been trucked by some contractors from as far distant points as Kansas (where there is an over supply due to the flood) to avoid shutdowns.

Here, as in Youngstown, new defense projects are eating up the supply. Three projects in particular are cited: (1) use of 200,000 bbl on construction of new runways at Lockbourne Air Base; use of almost as much on new runways at Patterson Air Field in Dayton; and highway construction.

• **Slowdowns**—Completion of the following projects in Ohio are being delayed: (1) A $450,000 building of Detroit Brass and Aluminum Co., in Bellefontaine, was delayed 10 days and as this issue went to press was still waiting. (2) The $500,000 Anchor-Hocking Glass Co. building at Lancaster, Ohio, went through a 10-day delay. (3) Four sewage treatment plants at Mount Vernon, Orrville, Uhrichvilles, and Fostoria. (4) Walter purification plants at Mount Vernon and Sardinia.

Elsewhere the picture is brighter, except for isolated instances. For example, it is reported the cement shortage will delay the finishing of Edens Expressway in Cook County, northwest of Chicago. About 450 batches of mix are being delivered to the job daily, but about 700 can be handled.

Contractors in the vicinity of the Atomic Energy plants at Paducah, Ky. and Savannah, Ga., are worried about future supplies. In Maine cement is being rationed among contractors. As a result of requests from cement mills, the Bureau of Reclamation has permitted Big Tompson, Colo., contractors to use Type 1 cement in lieu of Type 2 in order to prevent delays.

The cement industry has continually expanded its plant capacity during recent years, and these expansions are now serving it in good stead.

Public housing gets money, needs materials

NEW YORK—Despite continued restrictions on vital building materials, public housing was breathing easier this past week. Financing was showing a steady gain. The Public Housing administration announced that 17 housing authorities sold a total of $67.6 million in short term notes.

This follows another recent sale of $162-million housing authority bonds put up by 83 housing authorities in the U. S. and Puerto Rico. Authorized by the 1949 Public Housing Act, the bonds were put on sale to pay for low-rent housing projects.

New York City may also get a financial boost to aid public housing. State Housing Commissioner Herman T. Stichman announced last week a tentative allocation of $70 million of New York State funds to New York City for a two-year slum clearance project and construction of 5,000 apartments in five years.

The commissioner's offer to the city would include permissive cash subsidies from the state, which may total $122 million over a 50-year period.

The City's housing authority has filed plans for two federally subsidized projects costing $31.2 million and $20.4 million to be built on the upper East Side of Manhattan.

Burggraf to direct Highway Research Board

WASHINGTON—Fred Burggraf, acting head of the Highway Research Board since the death of Roy Crum last spring, has been named director of the board's operations. Announcement of his appointment was made Nov. 1 by R. A. Moyer, chairman of the board's executive committee.

Burggraf has been with the board for a total of 15 years, first as research engineer from 1928 to 1932, and then as assistant director since 1940. During the period 1932 to 1940 he was a research fellow and research engineer for the Calcium Chloride Association, specializing in highway work.

Kansas River flood rate was twice previous high

With all data on last July's floods in Kansas now reported and correlated, the U. S. Geological Survey concludes that the maximum Kaw River discharge at Topeka was 478,000 cfs. The previous record was 235,000 cfs in 1903.

The studies also show that the flow at Bonner Springs (located between Topeka and the mouth) was 5,300,000 ac ft during the July 10-20 period, or 1 million ac ft in excess of a whole year's normal runoff at that point.

The seriousness of the floods in other Kansas river basins than the Kaw is also pointed up by the studies. They show that the Neosho River discharge at Parsons was 439,000 cfs or only 8% less than that in the larger Kaw. Also that the Neosho's runoff of 91 cfs per sq mile at Parsons was nearly 11 times as great as the Kaw at Topeka.

These data are reported in Geological Survey Circular 151, which also gives discharge data for 40 gaging stations, a summary of past floods and weather and rainfall statistics for the July period.

It is available free upon application to the director, Geological Survey, Washington 25, D. C.

Filtration plant plans advance in Windy City

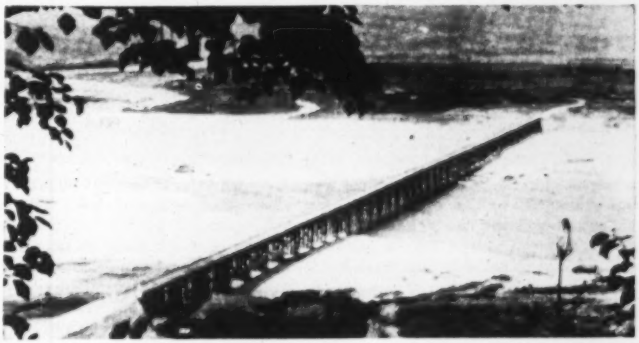
CHICAGO—A new phase of construction is about to begin on the $85-million Central District Filtration Plant here, as Public Works Commissioner Oscar Hewitt has requested bids for building a $5-million coffer dam near Navy Pier.

Bids will be opened Nov. 30. Closely following, bids will be taken on tunnel work.

Already plans and specifications for the filtered water reservoir are in an advanced state of preparation.

It will be possible to permit bids and award contracts on this work as soon as the 6,670-ft long cofferdam is completed and the 61-acre plant site dewatered.

Army dedicates Korea's longest bridge



FORNEY BRIDGE DEDICATED—Col. Frank H. Forney, former commanding officer of the 19th Engineer Combat Group and former Buffalo, N. Y., district engineer, was killed in Korea last November. The bridge, named in his honor, is built on 40-ft pile bent piers and is 1,880 feet in length, the longest in Korea. It crosses the Puhkan River in the Chunchon area.

BATTLE CEREMONIES—Lieut. Gen. William M. Hoge, commanding general of the 9th Corps and former CG of the Engineer Center and Fort Belvoir, is shown dedicating the bridge at recent ceremonies. Built by the 62nd Engineer Construction Battalion, the bridge was completed in 23 days.

LAUNCH "BAZOOKA"—Ben Moreell (left), president of J&L, shows Charles E. Wilson, Mobilization Director, how to detonate a "bazooka" charge which will tap the first heat of steel from the firm's new $70-million open hearth installation at Pittsburgh. Moments later, Mr. Wilson set it off.

Wilson predicts no steel over-supply, no strike, at J&L furnace tapping

PITTSBURGH—When Defense Mobilizer Charles E. Wilson tapped first steel from Jones & Laughlin Steel Corp.'s new $70-million open hearth installation here last week, he made three predictions:

(1) There will be no surplus of steel in 1952.

(2) There will be no steel strike.

(3) If wages are raised in the steel industry, prices will also rise.

He congratulated J&L, the nation's fourth largest steel producer, for being the first to bring in new basic capacity since Korea. The project was constructed under certificate No. 1 of the fast amortization program.

• **Another first**—Tapping the first furnace came only 17 months after ground was broken for the 11 furnaces and auxiliary facilities located less than a mile from Pittsburgh's Golden Triangle.

Part of the project is built on what had been a 10-acre area of blighted housing. The property was cleared by the Urban Redevelopment Authority of Pittsburgh and sold without public subsidy to J&L, in the first project of its kind in the country.

• **Answers press**—As more than 300 leaders of industry, labor, and government watched, Mr. Wilson detonated a "bazooka" charge releasing the first official heat of 250 tons from one unit of an installation that will produce 2 million tons of steel annually when completed.

Reporters asked him about recent predictions from steel officials that there will be an over-supply of steel the last of next year, and he laughed.

"Unless the whole economy is going to collapse—and I don't think there's any danger of it—it's going to take all the steel the steel companies can make to keep us going. There might be a temporary over-supply of certain kinds of steel, but generally speaking those who see danger ahead in an over-supply of steel forget their country's history. We're still a pioneer nation and we've got a tremendous lot of building to do."

• **Concerning a strike**—Mr. Wilson was asked to predict what the government would do if negotiations between steel management and the CIO United Steelworkers break down. He replied:

"I believe the steel workers and Mr. Murray and his union and the managements all will come to the conclusion that this is their country and their country is in danger and that the steel is needed."

Pressed further he added, "Yes, I think you can gamble that the government will step in and bring it to a peaceful conclusion. But there is no reason to cross that bridge until we come to it."

Asked about increased steel prices, he said: "If wages go any higher, prices will have to go up higher. There just isn't any question about that."

• **Engineering feat**—In many ways J&L's new open hearth installation represents the latest engineering strides in the steel industry. Features include newest open hearth furnace design and use of refractories, instrumentation for high efficiency in the control of temperatures, heat and efficiency in use of fuel; mechanized material handling facilities; provisions for using tar, oil or gas for fuel; and special facilities for the handling of metal scrap.

To built it required some 1,500 to 2,000 men working for 20 contractors. They put 26,500 tons of steel into pilings foundations below the ground, and erected 50,000 tons of steel above ground, used 88,000 cu yds of concrete, and 985 carloads of brick at 10,000 brick per car.

• **Reservoirs of Iron**—Iron from the blast furnaces will be held in two new 800-ton "mixers," huge heavily insulated reservoirs for hot metal, electrically driven and end-charged. They are equipped with individual heating burners and combustion air supply. In the event of power failure when pouring, an emergency air-driven engine returns the mixer to horizontal position.

• **Gives praise**—After viewing the first furnace in operation Mr. Wilson said:

"In my ten months in Washington, this is the first physical manifestation of the building up of our might that I have actually seen. It is two million tons, an increase of almost 2% of our capacity and 10% of the entire steel production of the Soviet Union."

Among contractors who helped build the new installation are: Swindell-Dressler Corp.; Morrison-Knudsen Co.; Raymond Concrete Pile Co.; Dravo Corp.; American Bridge Co.; Loftus Contracting Co.; Rust Engineering Co.; Port Pitt Bridge Works; H. H. Robertson Co., and others.

Builders take steps to cure housing ills

Private builders this past week took steps to hurdle some of the obstacles that have blocked the housing industry lately. At a meeting of the National Association of Home Builders held at Atlantic City, they did this:

• Set up a committee to see that housing is established in critical defense areas. According to Frank Cortright, executive vice-resident of the association, the committee will investigate delays in defense housing after government officials provide insured mortgages involved in the program.

• Began working work out methods of stretching supplies of critical building materials. This will bring building codes under attention. Cortright said out-moded requirements are often

forcing builders to use scarce materials unnecessarily.

At the same meeting Raymond M. Foley, administrator of the Housing and Home Finance Agency, said during the next year there will be an adequate flow of mortgage money for such building as is reasonably safe for the industry to undertake.

William P. Atkinson, NAHB president, speaking for the association fixed the 1952 housing needs at 1 million homes. He said that the U. S. needs a million new homes a year for as far ahead as he can see.

• **Confusion**—But in Washington there seemed to be a good deal of confusion as to how many new houses should be built during the coming year. The HHFA gave the highest estimate. Anxious to get as many new homes built as possible they think 925,000 are needed but will settle for 850,000.

The Defense Production Administration, charged with rationing building materials thinks that 700,000 are all the new homes that can be managed. But they have gone ahead and authorized materials at a rate that would provide the HHFA total of 850 thousand.

A factor that will affect the freedom of action of local home builders is the amount of housing that will be assigned to critical defense areas. HHFA officials have already programmed 40,000 units for fifty-six critical areas. And they expect to assign a total of 225,000 by the end of fiscal 1952, next June 30.

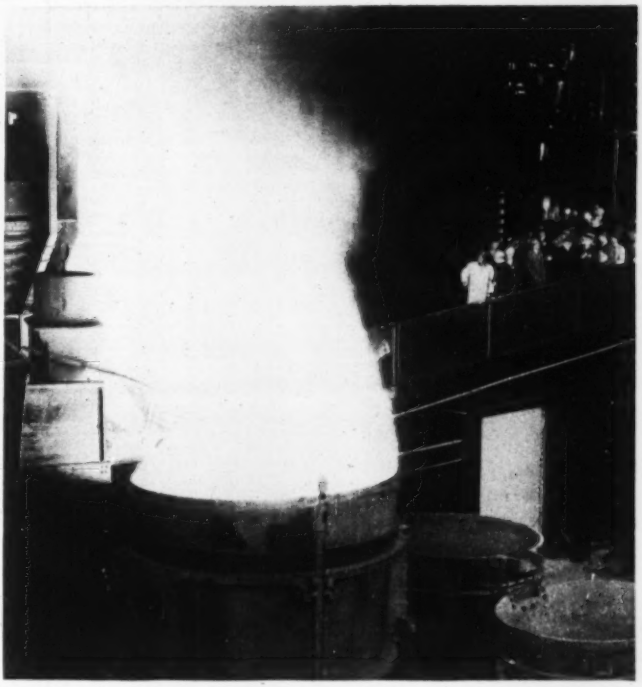
Add to this an estimated 50,000-60,000 Wherry Act housing units, and there isn't too much left for unrestricted development by individual home builders.

• **Plan starts**—While Washington argued over hypothetical totals a Cleveland group calling themselves "PERC" or Private Enterprise Redevelopment Corp. announced a low rent housing project to begin in four or five months.

Ohio Turnpike route receives final approval

COLUMBUS—Location of the 241-mile Ohio Turnpike route across northern Ohio was "approved and established" last week by Gov. Frank J. Lausche exactly as it was recommended by the consulting engineers, J. W. Greiner Co. (ENR Sept. 13, p. 28).

His action cleared way for negotiation of the estimated $310 million in bonds required to finance construction of the toll road from the Pennsylvania-Ohio border near Youngstown, to the Ohio-Indiana border near Berlin. Construction is expected in 1952.



FIRST STEEL—Tapping of the first of 11 new furnaces a J&L's Pittsburgh works marked the first major expansion in basic steelmaking capacity since the start of the Korean war. The heat of steel was released by Mr. Wilson, standing among the spectators at right.

California water group advises early planning

SAN FRANCISCO—An additional 18,000 tons of steel has been allotted for water and waste construction for the first quarter of 1952, according to G. E. Arnold, director of Water Resources Division, National Production Authority. This is in addition to the 158,000 tons of preliminary allotment and in response to Arnold's request for 128,000 more (ENR Oct. 18, p. 29).

This was the word that Arnold, now on leave as director of the San Diego Water Department, brought to the California Section, AWWA, at their annual convention in San Francisco late in October. Arnold also presided at the sessions as chairman of the group.

Harry Jordan, national AWWA secretary, told of the formation of Arnold's division of the National Production Authority. Both Jordan and Arnold made a plea for advance planning, asking waterworks men to have the estimate of their full 1952 requirements in to Washington as soon as possible.

• **Radioactivity**—Methods of determining the "background" radioactivity of a water supply were outlined by H. Gladys Swope, of the Argonne National Laboratory in Chicago. Miss Swope said the natural radioactivity of a water supply system must be known before contamination from radioactive sources can be determined. This is a difficult task, she said, because natural radioactivity is below the accuracy of ordinary Geiger-Mueller counters. Special chemical analyses must be made.

She said that the knowledge of removal of radioactive wastes has not developed very far. However, indications are that ion exchange followed by filtration will do the job.

• **Water quality**—Water quality standards set up by many state and federal agencies have, to a large extent, been borrowed wholesale without trying to fit to local conditions, according to J. E. McKee, associate professor of sanitary engineering, California Institute of Technology, in a report to the Purification Division.

McKee's tentative conclusions are based on investigations underway at Caltech.

LEVEES built to protect low areas in cities invariably raise the flood crests, thus contributing to the flooding of other areas.

How Good is Flood Control?

Gerard H. Matthes
Consulting Engineer, New York
(Formerly, Head Engineer, Office of the President, Mississippi River Commission)

The recent flood disaster in the Middle West tops off a decade of unusual flood events scattered throughout the world. Like all great disasters of this kind, it has been followed by a period of hysteria not conducive to remedying a situation that has been getting progressively worse instead of better. The thoughts uppermost in the minds of the public are: How good is flood control? Does it really control floods?

The answer: We expect too much from it.

Presented in the following are factual data—not theories—that may serve as a basis for sober thinking on the part of all concerned.

Stated in a nutshell, the problem basically is not so much an engineering as a human problem that grows out of the ever-expanding trend for population to crowd into the natural flood plains—Nature's appointed pathways for flood waters.

We teach our Boy Scouts to pitch their tents on high ground where flood waters cannot overtake them; but their elders build their factories, homes and cities on any low, flat ground—although it may have been subject repeatedly to overflow by great floods. Then they rely on their Congressmen to see to it that government engineers save them from overflow, AT THE EXPENSE OF THE PUBLIC PURSE. Some cities wisely have established flood zones within which no buildings are permitted, but what of towns built for the most part on low ground?

We have witnessed a growing trend on the part of public officials and the public at large to look upon flood control as a remedy of more or less obvious application and as affording a dependable cure for the flood hazards that have been created throughout the United States and that are being added to daily.

The term "flood control" has misled the public, as well as the authorities charged with providing protection against overflow, into the belief that these words imply COMPLETE CONTROL, that is, permanent protection under all conditions. The experience records in this country, and the much longer experience records abroad, demonstrate that permanent and complete control can rarely be achieved for either physical or economic reasons.

• No complete protection—Viewed the world over, hardly any flood-control works have been built that provide 100 percent protection against the greatest floods likely of occurrence. This is speaking of floods in rivers. When it comes to curbing flash floods in small streams, very little has as yet been accomplished worthy of the name of flood control; yet, flash floods throughout the United States exact a damage toll that averages, annually, greater than that inflicted by river floods.

Great cities that never have succeeded entirely in licking their flood problems are London on the Thames, Paris on the Seine, Cologne on the Rhine, Breslau on the Oder, and Rome on the Tiber. The list of smaller cities that belong in this category is too long to recite here. It includes many towns in the United States.

• Early flood records—Prior to 1900, flood control, as we know it today, had not been given serious thought in the United States, and was not taught in the colleges. The levees along the Mississippi River and a few small levees elsewhere, were taken much for granted. There came a period of great floods in many parts of the country that brought a rude awakening on the part of the public, its engineers, and public authorities.

The Passaic River in New Jersey led off with two of the greatest floods in its history on March 2, 1902, and Oct. 10, 1903. In May-June, 1903, great floods in the Blue and Kansas Rivers in Kansas met a great flood crest in the Missouri River, and Kansas City experienced its first devastating flood. In 1903 also, the Hudson River, which had staged a high flood on April 24, 1901, had another on March 25; the

Mississippi River at St. Louis rose to 38.0 ft on June 10, and the Delaware River exceeded all previous records on Oct. 11.

In March 1904 the Susquehanna River caused widespread damage by flood and ice, estimated at $8,000,000. In 1904 also, the Sacramento River in California produced a succession of four flood crests in February and March that exceeded all records since 1862; and in October 1904 there was a very high flood in the Rio Grande in New Mexico.

All these happenings, however, were overshadowed in March, 1907, when the Ohio River went on a rampage and caused extensive damage, particularly at Pittsburgh, Cincinnati and Evansville. The list does not end here, but the important fact brought out by these floods was that most of the cities mentioned were caught either poorly equipped for protection against high water, or else wholly unprepared. Others had made their own position even worse by encroaching on the river channel.

One extreme case of this kind existed at Kansas City, where investigation by a special board of Army engineer officers disclosed that the normal average width of the Kansas River, which originally was 850 ft, had been reduced to an average of 590 ft and in one place to 420 ft. The board also found that the bridges, 16 in number, of which 15 had been destroyed, had been built with too short spans, calling for an unnecessary number of piers. These had loose rock dumped around them. As a result of these encroachments the natural bankfull river capacity had been reduced to about one-half. Somewhat similar conditions were observed at Topeka.

A year later Kansas City escaped another visitation from the Kansas River, fortunately due to the Missouri River crest having passed, which expedited the flow in the Kansas River.

• **Rivers must overflow**—It does not seem to be generally understood that river channels were not meant to carry flood flow. In Nature's plan, the world over, the place for flood waters is on the flood plains. This is fundamental in any considerations affecting flood control, and applies as much elsewhere in the United States as in the Missouri River valley.

Equally serious is the problem in the Columbia River basin. Property damage from the 1948 flood aggregated $102,725,000 within the United States part of the basin, about one-half of which occurred in the immediate vicinity of Portland, Ore., and Vancouver, Wash. Quoting from the recent findings of engineers of the Soil Conservation Service:

"The damage in 1948 was due to Man's encroachment upon the flood plain of the river in the course of 54 years, which have shown a flourishing development of industrial, commercial, and agricultural enterprise along the river's channel. Therefore, future floods of comparable magnitude can be expected to do very great property damage in vulnerable areas throughout the Columbia River Basin."

• **Early flood-control projects**—The high degree of effectiveness of the protection furnished small areas, as for instance the cities and industries in the Miami River valley of Ohio, has created the erroneous impression that similar treatment can be provided for large projects elsewhere. The Miami River valley was among the first in the United States to be provided with flood control aimed at protecting against the greatest flood that conceivably could occur. In the absence of stream-flood records, this was assumed as 40% greater in maximum crest discharge than that of the flood that had devastated the valley in 1913. The project cost was about $30,000,000, all of which has by now been repaid by the people of the valley.

That project provides protection to the 80,000 acres of valley lands which comprise the Miami Conservancy District. Of this total, however, only 13,000 acres of high-priced city and industrial property receive complete protection against the highest floods. The remaining 67,000 acres of valley lands, mostly in farms, receive only partial protection against river floods and practically none against flash-floods that occasionally descend from small tributary valleys.

Worthy of note in a discussion of this kind is the fact that land in the five retarding basins covers a total area of about 36,000 acres, or nearly half an acre of retarding-basin land to protect one acre of conservancy district land, which ratio is so disproportionate as to invite no duplication elsewhere.

• **Gates needed on retarding basins**—Although the Miami Conservancy District work has been successful, it does not provide a useful pattern for large-area projects because of its distinct limitations, chief of which is the absence of gates on its retarding basins. There is no control over outflow from the district's dams in emergencies, as when the Ohio River, into which the Miami River empties, should be at a critical stage. Also, inability to flush out the river channels below the dams permits tributary sediments to accumulate in them, and these require removal by dredging.

In Europe, where retarding basins were popular years ago, many of them have since been equipped with gates. Gate control permits operation on the retarding basin principle, by setting gates at predetermined openings. At other times such gates provide complete control.

Mathematically, an automatic retarding basin requires a larger capacity, hence a higher dam, than a gate-controlled dam, because the latter enables flood water to be passed during the early rising stages, which a retarding basin would be required to retain. This, however, assumes expert operation. But the principal objection to retarding basins nowadays resides in the inability to store flood waters in them. This works contrary to the principles of water conservation, whether for direct practical use or for replenishing ground storage.

• **Many reservoirs needed**—For the Ohio River and its tributaries, (total drainage area of 203,900 sq mi) more than 80 flood-control reservoirs are needed, many of which are already built; this includes those in the basin of the Tennessee River. By comparison, the watershed of the Missouri River covers 243,500 sq mi above Pierre, S. D., or more than the Ohio and Tennessee basins together. At Omaha the Missouri River drains 322,800 sq mi; at Kansas City, Mo. 489,160 sq mi, or more than twice as much as the Ohio and Tennessee combined. The entire Missouri River basin, where it joins the Upper Mississippi River above St. Louis, covers 529,350 sq mi, two and one half times the entire Ohio River basin.

• **What about the TVA?**—Much has been said in recent years about the integrated plan of the Tennessee Valley Authority for navigation, flood control and power on the Tennessee River. Nevertheless, no significant flood control or flood reduction is manifest along the main river after 18 years of work, and none is claimed by the TVA. Kentucky Dam, just above the mouth of the river, however, provides a large amount of storage to assist in the control of floods in the Ohio.

Chief reason for the lack of flood control on the main river is that the best sites for storage reservoirs are too far up on the tributaries, thus leaving a large part of the drainage basin uncontrolled. Another reason is that the succession of navigation pools, which extend over 648 miles of the main river, have flooded out most of the low valley lands along the river which formerly constituted the "valley storage" for floods. This explains why Chattanooga had to be protected by high levees. The flood crest at that point had suffered no great reduction

KANAPOLIS DAM on a tributary of the Kansas River was completed in time to help reduce the recent flood in that valley.

by all the storage dams in the watershed above.

There is, therefore, no point in trying to effect a comparison between any "integrated" plan of development of the Missouri basin with that of the Tennessee River basin. The truth is, river basins cannot be compared with each other, as the conditions in no two are alike, and each represents a separate problem.

• **Dangers in operating reservoirs**—Assuming the completion, some day, of the best dam and reservoir sites in the Missouri River basin, there still remains the question: How to operate so gigantic a system for greatest efficiency? There is only one way to find a definite answer, or rather a set of answers, since the main tributaries never twice will offer the same combination of flood runoff conditions. This is to build and operate a model (as the Corps of Engineers has done) of the entire Mississippi River watershed. With such a model it will be possible to determine how the 200 or more flood-control reservoirs to be built in the watershed should be operated, not only for intercepting flood flow, but also for releasing the impounded waters. Unwise operation can lead to grave complications by building up new harmful stages.

• **Flood menace exaggerated**—There is a persistent belief that elimination of the flood menace through costly flood-control work is essential to the prosperity and continued growth of communities. The facts do not support this belief. Severe inundations, like great conflagrations, halt growth only temporarily. Many towns have grown into important and prosperous cities despite repeated invasions by water. Pittsburgh is a conspicuous example.

Pittsburgh's flood record begins with the destruction in 1756 of Fort Duquesne at the junction of the Allegheny and Monongahela Rivers, followed by the extraordinary floods of 1762 and 1763 which nearly wiped out Fort Pitt. Yet, in complete disregard of these major flood occurrences, a town was founded at this site, which without protection of any kind, despite a long succession of severe overflows, grew into the Pittsburgh of today. The last great flood that ravaged the city, that of 1936, which was the greatest (4 ft. higher than 1763), occurred at a time when flood-control reservoirs in the upper watershed were in process of being built. That system has since been completed by the Corps of Engineers, and now provides a high degree of protection.

• **Adaptation to occasional flooding**—One plan of procedure is clearly indicated in the case of cities located in critical places, like Kansas City, at the junction of two rivers and a creek (Turkey Creek), all three notorious for staging great floods. That is to plan for future invasions by flood waters so as to minimize damage and interruption of business. This applies particularly to moving gasoline and oil storage tanks out of low areas, and to the storing of perishable goods on floors high enough to be out of the reach of high water at all times.

Adaptation of this sort has been practiced for many years in cities that are invaded frequently by storm tides. Examples are London, Venice, and Norfolk, Va. During the writer's sojourn in the latter city, flooding of this type occurred on an average of once or twice a year. Except for tying up business and traffic for periods of from 2 to 5 hours, no real damage resulted. Stores keep goods on high shelves, and buildings were built to withstand occasional wettings. So commonplace is this situation, the newspaper seldom mention it. The residence district is largely on ground high enough to be out of the reach of storm tides.

• **Levees widely used**—Of the various methods of flood control, levees (dikes) have been employed more extensively than any other. Strictly, levees do not control floods. They serve to protect land against overflow, and the cost, most often, is less than by any other method. Levees built on both sides of a river confine flood flow and invariably raise flood stages. On the lower Mississippi, before high levee construction, the maximum range between high and low water was 45 ft at Cairo, tapering off to 12 ft at New Orleans. Since the high levee system was completed this range now is 60 ft at Cairo and 21 ft at New Orleans.

Mississippi River levees, in places as high as 24 to 28 ft, are responsible for seepage through the soil under them during high river stages. This has created serious drainage problems on the very lands they were designed to protect. In general, levee heights are limited by the bearing power of the soil on which they are built.

A levee many miles in length is akin

to a single line of defense facing an enemy. One break in such a line loses the battle. To avert such disasters some European countries have built secondary levees to prevent water from spreading. This system thus far has received but scant recognition in the United States.

Concrete flood walls have been used at many cities in lieu of levees, but have also been responsible for seepage troubles. An example is Cairo, Ill., a town literally walled in against high water, where springs develop in basements and in the streets during times of high water.

• Floodways have limited scope—Floodways and by-passes afford excellent flood relief, but are practicable only where the lay of the land happens to favor their construction. The by-pass system employed for many years in the Sacramento River valley has proved very satisfactory. Farmers whose lands are used were paid for "flowage rights" with the understanding that crop loss from overflow would be at their risk. Bypass water has gone over their lands often, at times year after year, twice in 1937, and crop losses have resulted, but always the growing season was long enough in that climate for the farmers to plant and harvest a second crop. The soil, benefitted by overflow, has retained its high natural fertility.

The floodway opposite Cairo, Ill. is also a "bypass," for it returns its flood waters to the Mississippi River near New Madrid, Mo. Farmers there were paid the full value of their holdings as flowage right. This floodway has been operated only once, in 1937, when it saved Cairo from inundation. Since that time the farming population within the "Birds Point-New Madrid Floodway", as it is called, is said to have doubled, presumably because of the fertility of the land.

Shortening winding river channels in order to reduce flood stages is a delicate undertaking since it disturbs river gradients. The earlier cutoffs made in the Oder River and in some other European rivers often proved harmful rather than beneficial. The cutoff system that shortened the lower Mississippi 170 miles was designed with due regard to keeping resulting gradients within the range that fits the river's profile. It has lowered flood stages materially. In the case of heavy sediment-bearing streams, cutoffs give no dependable results.

• Many limitations—From the preceding it should be clear that the only effective methods for controlling floods are by means of large storage reservoirs, or by diverting excess waters into floodways. But even these methods have limitations. Floodways are rarely practicable except in the instances cited.

Storage reservoirs have a wide popular appeal, except where they call for sacrificing valuable agricultural land or the removal of a village, but their effectiveness dwindles the farther they are away from the localities needing protection. Unfortunately, good dam and reservoir sites are not always to be found where they could do the most good, namely, on the main river, or in the lower reach of each main tributary. In the case of Dayton in the Miami River valley in Ohio, the city happened to occupy the best site for a flood-control reservoir.

The best storage sites are nearly always well up on the tributaries, which means that flood control reservoirs so located are chiefly valuable for protecting the towns and farms in the valleys immediately below them if operated with this objective in view.

So far as is known to the writer, operation by federal agencies follows this common sense plan. But the flood reduction so effected on any tributary suffers diminution progressively downstream, due to storm runoff from the uncontrolled part of the tributary's watershed. Since in our Great Plains country these uncontrolled areas, in the aggregate, are bound to be very large, the ultimate flood reduction effected in a river like the Kansas, will not be sufficient to prevent it from overflowing its banks.

To illustrate, available data show that the recent flood in the Kansas River came mostly from one tributary, the Smoky Hill River and originated BELOW THE KANOPOLIS DAM on that river. The other main tributary, the Republican, although above flood stage, did not add appreciably to the flood.

The Republican River, in times past, has been a principal offender, but on this occasion its basin received no heavy rainfall. This shows how the vagaries of rainfall distribution complicate the problem of making the best use of flood-control work. It is generally recognized that the greatest flood on record at any point on a stream must be accepted as indicative that a yet greater flood remains a possibility and must be expected. This certainly is borne out from a study of the storm rainfall that produced the recent Missouri River Valley floods.

• Bank-full stage problems—Even assuming that a reservoir system large enough could be so operated as to keep main river stages down to bank level at important cities built on low ground, this still does not solve the problem for those cities, nor for the farmers. A bank-full river is a serious liability. At towns and cities it backs water into sewers, fills basements, interferes with drainage of storm water from roofs and streets, including industrial liquid wastes; factories on low ground are obliged to shut down and waterworks may have to serve raw water.

Some cities now own special pumping plants for handling sewage and storm water when the need arises. Such plants stand idle most of the year, sometimes several years in succession, and represent an investment and upkeep cost that is reflected in the taxpayer's schedule.

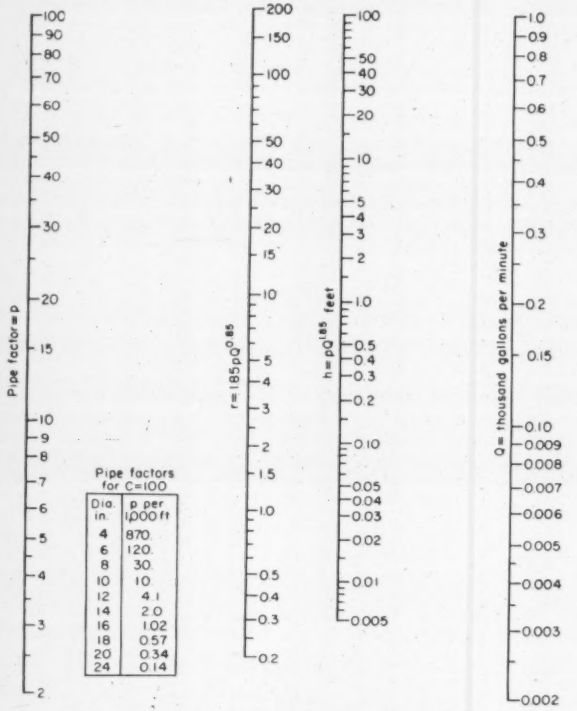
Outside the cities, the farmer finds himself in a worse quandary than before reservoir control. Where previously his land was protected against high river stages by a levee while the flood lasted, flood water releases from the reservoir to create storage capacity for a possible later flood will keep river stages at or near bank level over very much longer time, thereby causing his fields to become soggy, rain water to stand in the furrows ruining growing crops, and seed to rot in the ground, all for lack of drainage. These conditions have already developed, and are not therefore imaginary. They prove that flood stages must be reduced well below bank level if complaints and damage suits are to be avoided.

• High cost and much time—There also is widespread lack of appreciation of the magnitude of even a conservative plan of flood control and of the time that will be required to provide many regions with a reasonable amount of protection. The cost is going to be so great that Congress must plan to spread the work yet to be done over a period of many years. Hence there will be many regions that will get only partial protection during the years just ahead even under the current programs such as the one now being carried out under the Missouri Basin Inter-Agency Committee.

Coming back to the question asked in the opening paragraph, "How good is flood control?" certain conclusions are inescapable:

So long as people continue to establish homes or industrial plants in the natural pathways for flood waters, especially when there is high ground near by—as at the two Kansas Cities—and so long as they are permitted to encroach on river channels for lack of city, state or federal laws to regulate such actions, so long will flood control remain ineffective and undependable. The drain on the U. S. Treasury for flood control, though technically a public necessity, is hard to defend until some common sense is instilled into the basic conception of flood control.

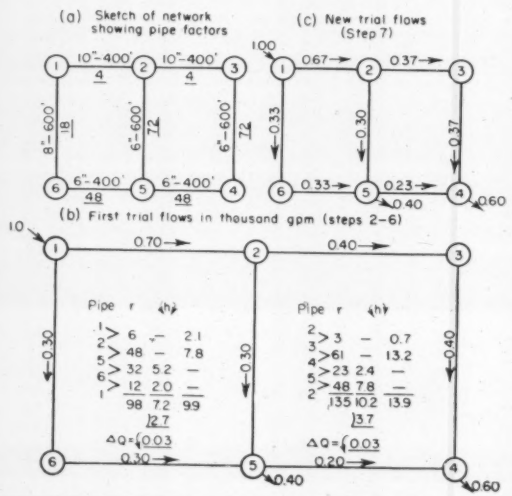
Diagram simplifies network-flow problem



Pipe factors for C=100

Dia. in.	p per 1,000 ft
4	870
6	120
8	30
10	10
12	4.1
14	2.0
16	1.02
18	0.57
20	0.34
24	0.14

Diagram is based on Hazen–Williams formula $v = 1.32\ CR^{0.63}S^{0.54}$
h = head loss; L = length of pipe; D = diameter (all in feet); and
Q = thousand gallons per minute.


(a) Sketch of network showing pipe factors
(c) New trial flows (Step 7)
(b) First trial flows in thousand gpm (steps 2–6)
Pipe r Δh
ΔQ = 0.03
ΔQ = 0.03

HERE IS A DIAGRAM that helps solve for terms in the Hazen-Williams formula, commonly used to calculate flow in pipes of distribution networks by methods developed by Hardy Cross (ENR Oct. 1, 1936, p. 475).

Terms to be calculated are these:

$$h = p\,Q^{1.85} \qquad (1)$$

$$dh/dQ = r = 1.85\,p\,Q^{0.85} \qquad (2)$$

$$p = \frac{L}{242\,D^{4.87}} \qquad (3)$$

where h is head loss, r is the rate at which head loss changes with discharge, Q, and p is pipe factor.

They may be found mechanically on the diagram, and the network problem may be solved as follows:

• **Procedure**—1. Sketch essentials of the pipe network and calculate pipe factor, p, for each reach of pipe.

2. Assume maximum flow in any pipe of network is 1,000 gpm. Distribute flow through system of pipes to satisfy continuity. Write each Q_1 on sketch with arrow indicating assumed direction of flow.

3. Consider the pipes which form any one loop and the "first trial flows," Q_1. For each pipe of that loop—

(a) Compute head loss, h, corresponding to assumed Q_1, and enter h in proper column of table: clockwise or counterclockwise depending on assumed direction of Q_1 around loop.

(b) Compute correction factor, r, corresponding to assumed Q_1, and enter it in the r-column of the table.

4. Add figures in h-columns and write the difference of these sums under the smaller of the two. This difference is Δh, "head to balance."

5. Divide Δh by the sum of the figures in the r-column. The quotient $\Delta h/\Sigma r = \Delta h/\Sigma\ (\Delta h/\Delta Q)$ is ΔQ, a "counter-flow" needed to balance head losses around that loop. The direction of this "counter-flow" is indicated by the arrow at the top of the column of the "head to balance."

6. Proceed with steps 3, 4, and 5 for each loop of the network and find ΔQ for each loop.

7. Assume "new trial flows," Q_2 for each pipe. New trial flows may be the algebraic sums of "first trial flows" (Q_1 from step 2) and the "counter-flows" (ΔQ from steps 5 and 6).

8. Repeat steps 3, 4, 5, 6, for "new trial flows" as warranted.

This diagram solution was authored by Prof. F. T. Mavis, head of the civil engineering department at Carnegie Institute of Technology. His presentation of the method in the newly launched Carnegie Notebooks in Civil Engineering also included a slide rule to serve the same purpose.

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The latest to be learned from Los Alamos

What treatment for radioactive wastes?

John F. Newell
Sanitary Engineer

C. W. Christenson
Superintendent of Water & Sewage

Atomic Energy Commission,
Los Alamos, N. M.

OVER A YEAR AGO, the authors presented a paper before the Rocky Mountain Sewage Works Association, discussing radioactive wastes and disposal methods tried to that time. This present article updates their earlier paper, describing recent treatment results at the Atomic Energy Commission's Los Alamos (N. M.) laboratory.—EDITOR.

Radioactive waste research at Los Alamos has been directed chiefly toward removal of plutonium from laboratory and laundry wastes. Two methods have been demonstrated successfully:

1. A ferric hydroxide co-precipitation process
2. A trickling filter

These and other findings result from continued research into the disposal problem of nuclear wastes.

• **Nature of the problem**—The nuclear energy industry has added another yardstick of waste treatment efficiency, the measure of radioactivity. Radioactivity cannot be oxidized or destroyed by chemical or biological methods, like oxidation of BOD or destruction of certain organic compounds. Although usually present in extremely small quantities in wastes (parts per billion or less) most radioactive materials are so toxic that even those low concentrations must be reduced.

Radioactive elements remain radioactive until they disintegrate to stable, non-radioactive substances. Half-life (time for half the atoms of a particular material to disintegrate) of different materials varies from fractions of a second to billions of years. Thus, not all radioactive materials can be stored until stabilized. For instance, storage of wastes containing plutonium 239 (half-life: 24,000 years) is impractical for the quantities involved.

Concentration of wastes is necessary. Methods including evaporation, ion exchange, chemical precipitation and biochemical treatment have been used successfully on certain wastes.

• **Nature of the wastes**—Plutonium content of composite daily samples of wastes at Los Alamos has been found to vary from 200 to 25,000 counts per minute per liter. The pH varies anywhere from 2 to 13, and total solids range widely from 230 to over 15,000 ppm.

Plutonium is known to be absorbed to or attach itself to almost any material or surface with which it comes in contact. This fact suggested the treatment methods that have been tried: Addition of adsorptive agents, chemical co-precipitation and use of biological flocs.

• **Nature of results**—Most adsorptive agents tried worked—activated carbon, "celite," kaolin, pumice and tuff. Activated carbon gave the best results, 500 ppm removing 99% of the activity from "spiked" tap waters.

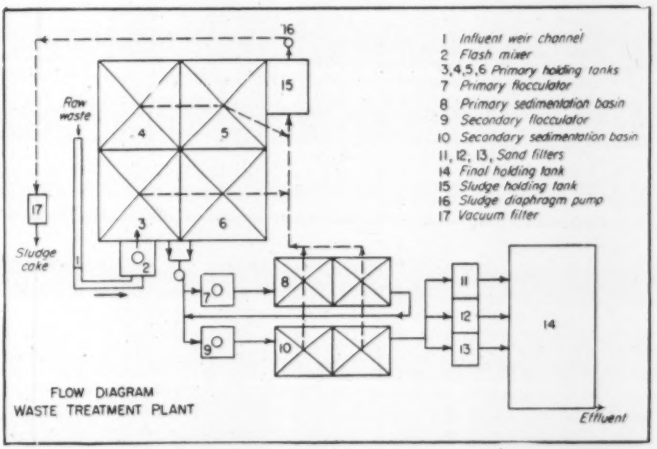
Activated sludge was studied, and it was found that plutonium would concentrate on the sludge with removal efficiencies in the 90 to 95% range. But the prospect of necessarily multistage operation on a large scale detracts from the practicality of this method. Also, there is danger of wastes containing other materials (such as copper) which would kill the sludge organisms.

Work on chemical coagulants evolved into the choice of ferric chloride and lime for best results. This combination worked better than other coagulants tried (sodium hydroxide and alum) in the presence of frequent complexing agents such as citrates and phosphates. When these were present in quantity, pH values approaching 12 were necessary for satisfactory flocculation, and addition of activated silica was helpful.

• **Plant design**—Urgent need for treatment facilities meant plant design had to be based on laboratory findings without taking the time for benefit of pilot plant tests.

Chemical precipitation using prolonged periods of flocculation and sedimentation followed by slow filtration is the fundamental feature of the plant decided upon.

Wastes enter the plant through a weir where flow and pH measurements are made. Lime or caustic soda are added next in a flash mixer for pH control; then wastes go to holding



SO FAR IT'S THIS—Chemical precipitation, prolonged flocculation and sedimentation, then filtration has produced results.

tanks equipped with stirrers that keep solids in suspension.

Primary flocculation for 60 minutes —with whatever coagulant is added— is followed by primary settling. Clarified wastes then get secondary flocculation and settling before the effluent goes to the filters.

Detention time in serial operation is 6 hours in each tank. The flocculators and settling tanks may be operated in parallel or either tank may be taken out of service without affecting the other.

The filters contain sand of different grades for comparison purposes on rate and sand coefficient studies. The filtered effluent is collected in the effluent holding tanks to be monitored before final disposal into an adjacent canyon. The filters are washed with effluent water with return of the dirty wash water to the primary holding tanks for treatment.

Sludge collection is provided from all points in the plant where sedimentation might take place. The sludge flows by gravity to the sludge holding tank where it is allowed to concentrate further and the supernatant is returned to the influent tanks. The settled sludge is transferred by means of diaphragm sludge pumps to the vacuum filter where it is further dewatered. The sludge cake is collected in drums and buried in the contaminated dump.

Materials of construction are concrete throughout. Stainless steel and duriron are used where metals are in contact with unneutralized waste.

• **Specific results**—The plant has been in operation only a short while. A few general observations may be made, always remembering that they are *subject to change without notice.*

Characteristics of the waste are somewhat different than expected. Total solids are in the range of 3,000 to 4,000 ppm, the pH is somewhat higher than expected with a mean of about 6, although extreme variations are still present and pH values of less than 2 and higher than 12 are not unusual. The activity has varied from a few hundred counts per minute per liter to over 20,000 with an average value of about 2,000 C/M/L.

Plutonium removals have, in general, been better than expected. Effluent values of 20 to 30 counts per minute per liter are not uncommon and the highest value has been less than 200 C/M/L. As expected, removals are higher when the plant is in series operation than in parallel but, of course, the capacity of the plant is reduced in this type of operation. Filtration rates from 1 to 3 gallons per square foot per minute have been tried with no apparent effect on effluent quality. Filter runs at 2 gallons per square foot per minute average about 20 hours.

Sludge production is somewhat higher than expected, due perhaps to a higher concentration of total solids in the raw waste. The sludge as drawn from the settling tanks has averaged about 1.0 percent solids, and this further concentrates in the sludge holding tank to about 2 percent solids. The sludge is filtered on a vacuum filter and the cake contains about 25 percent solids. Sludge cake production amounts to about 2 gallons per 1,000 gallons of waste treated.

In the first operation of the plant, neutralization was accomplished by use of slaked lime in the primary or flash mixer. This was later changed to sodium hydroxide resulting in the production of a somewhat smaller volume of sludge.

Lime and ferric chloride have been used almost exclusively for coagulation. The ferric chloride dosage has been about 20 ppm as Fe, with enough lime to maintain the pH at or near 8. Characteristics of the waste often require different dosages but the above is a close average. Alum has been used intermittently but difficulty has been experienced in maintaining the pH in the range which is suitable for alum coagulation.

Because of the presence of organic matter some trouble has been encountered in septic sludge in the sedimentation tanks. This has been largely eliminated by the use of chlorine and frequent drawing-off of sludge.

• **Trickling filter**—Laundering facilities at atomic energy installations are provided for the cleaning of protective garments and equipment worn by the personnel who work with radioactive materials. Operation is similar to that of the commercial laundry, but wastes produced are radioactive: Plutonium concentration, 1,000 counts/minute/liter.

Chemical treatment of the laundry wastes was tried but difficulty was experienced in obtaining good flocculation and plutonium removal because of the presence of complexing materials.

Studies on the application of biological treatment to the problem were performed with the trickling filter process. The trickling filter was selected for study in preference to the activated sludge process to avoid forming difficulties which would be encountered by aeration of the soaps and synthetic detergents.

A two-stage trickling filter produced plutonium removal results comparable to the chemical treatment process and resulted in an effluent containing about 10 ppm of suspended solids, 2 ppm BOD and a volume of sludge less than 0.2 percent of the waste treated. It appeared to be necessary to oxidize practically all of the BOD and remove most of the suspended solids in order to obtain the desired plutonium removals.

In the authors' paper mentioned above (presented Sept. 27, 1950) may be found details of the trickling filter installation. (This paper appeared in the July, 1951, issue of SEWAGE AND INDUSTRIAL WASTES.)

Present pilot-scale work is directed toward studying effect of discharging low-level radioactive laundry waste to sanitary sewers and treating contaminated laundry waste with the sanitary sewage in a trickling filter plant.

The waste research program at Los Alamos is a cooperative venture with participation by the Atomic Energy Commission, University of California, U. S. Public Health Service and U. S. Geological Survey.

Southern California '51 stream runoff sets record low for past 4 years

Runoff in streams of southern California during the year ending this Sept. 30 was the lowest in the past four years, according to the U.S. Geological Survey.

Rainfall records collected at Los Angeles during the past 74 years indicate the area is now in its third prolonged dry period. There was one 1893 to 1908; the second spanned 1918 to 1933; and the third, beginning in 1936, continues unabated.

The present drought has not reached proportions of the two earlier ones in severity. But it is relatively more critical because today's demands for water are so much heavier.

Mountain reservoirs—except those containing imported water — are mostly empty. Ground-water supplies are drawn down. A combination of sub-normal stream flow, lowered ground-water supplies and limited new sources adds up to a critical situation throughout the area.

Copies of a review of water supply conditions in the southern California area are now available to a limited number from the Los Angeles office of the Geological Survey, 429-F Post Office & Court House, Los Angeles 12, Calif. Or the review may be inspected at Rm. 2240 General Services Building, Washington, D. C.

Will Defense Production Be Caught in the Squeeze?

When Congress revised and extended the Defense Production Act, it relaxed a squeeze on business profits.

President Truman asserted that this action by Congress cripples the government in its effort to prevent inflation which, as he puts it, could lead to "enrichment and profiteering for the few, economic hardship and misery for the many."

He asked Congress to rescind its action.

This editorial—the second on problems presented by "escalator"clauses—aims to throw some light on this conflict of opinion.

The Squeeze

The squeeze on profits was imposed in the name of price stabilization. The idea behind it was simple. The *selling prices* of industrial products were to be held under a tight lid. But many industrial costs are affected by "escalator" clauses of one kind or another which tend to boost production *costs*. Thus, with rising costs and fixed prices, profits would be squeezed and much of the cost of defense would thereby be shifted from those favored by escalator clauses to business concerns.

The mechanics of this squeeze on profits were complicated. But here, in brief, is how it was to work. The first step was to require manufacturers to set ceiling prices, effective May 28, for their products.

These ceiling or maximum prices were to allow for increases in manufacturers' costs that had occurred since Korea. *But they did not allow for all increases.* Manufacturers, for example, could not include increases in indirect costs—office or selling costs. Neither could they, in calculating their new prices, include increases in the costs of materials or direct labor that had come after March 15. This was the first phase of the squeeze on profits.

The second phase was prepared by **not** putting a ceiling on costs. The Wage Stabilization Board said it could not disturb the operation of "escalator" clauses by which wage rates are geared to the cost of living. Moreover, nothing could be done to curb the operation of the farmers' "escalator" clause, the farm parity arrangement. Under it, the federal government underwrites higher prices for farm products to match increases in the cost of things farmers buy. So this left wages and many materials costs free to rise against a ceiling imposed on the prices of what industry has to sell.

Relief—at a Loss

On two conditions only would the Office of Price Stabilization permit a company to raise its prices and escape this squeeze. One of these was that increased costs had more than wiped out its profits; in other words, that it was operating at a loss. The other condition was

that the industry of which the company is a part was not, as a whole, making "excess profits." That is, the industry, as a whole, could not get price relief if its overall profits before taxes were greater than 85 percent of its average profits during the best three of the four years from 1946 through 1949. Many companies expected that their profits would be cut drastically before they could get through this narrow escape hatch.

When this squeeze on profits was set up, we were told that industry as a whole was reporting record profits. But, it was equally true that wage rates and farm prices also were at record high levels. And it was also true that, under the impact of rising taxes and the dislocations caused by the defense mobilization program, profits actually were on the way down.

Profits — Going Down

By the time Congress acted to relax the squeeze, corporate profits, after taxes, were running at a rate 20 percent lower than they had been six months before. And the clear prospect was that they would continue to decline.

So the issue put up to Congress was simply this. Should business firms stand so much of the brunt of the defense costs while "escalator" clauses continued to exempt organized workers and farmers from paying their share of those costs?

But this question actually is much broader than one of fairness or unfairness alone. One certain effect of such a squeeze on profits would be to undercut the capacity of private industry to install the new plants and equipment needed for our mobilization effort. Today — unlike World War II — private industry is financing almost all of our huge program to expand production. And about two-thirds of the money that has been plowed into the expansion and improvement of our industrial machine since World War II has come out of profits.

In view of all this, Congress decided last summer to relax the pressure on profits. This was done by the controversial Capehart Amendment to the Defense Production Act. This amendment has serious administrative weaknesses. But some measure with the same purpose is needed to maintain profits at a high enough level to finance the huge and continuing expansion of our industrial machine that is now underway.

Basic Issues

As soon as the amendment was enacted, the President asked Congress to revise the law again. The heart of his proposal was to restore to the Administration the powers it used last spring to arrange the squeeze on profits outlined here.

This controversy will continue. There can be no final answer to it as long as we have the economic controls made necessary by mobilization.

But if we look beneath the surface of this technically complicated controversy, we shall see clearly that the basic issues are:

1. Whether we really shall make an effort to distribute fairly the burdens of inflation caused by our defense mobilization —

2. Whether farmers and organized workers should be exempted from these sacrifices by escalator clauses — at the expense of the nation as a whole —

3. Whether profits should be squeezed still more — at the risk of putting a fatal squeeze on the effort of industry to build new plants and install new tools. These new facilities are essential to maintaining American living standards — and they are the heart of our ability to defend ourselves and the rest of the free world.

Americans face no more important economic issues at this time.

McGraw-Hill Publishing Company, Inc.

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READER COMMENT

Easier compaction control

Sir: The article "Compaction Control of Earth Fills . . ." in your issue of May, 3, 1951, is very interesting, and would be very useful where the necessary hot plate and power supply were available. However, on many construction jobs that would require a considerable capital investment, or else the necessity to travel some distance from where the test sample is selected to the place of the testing. I would therefore draw your attention to an even more simple method which, it is understood, was originally developed by J. Mathew of the Victorian State Rivers and Water Supply Commission.

Mr. Mathew's test was merely to mix in methylated spirit with the damp soil and to ignite the surface of the mass with a match. The quantity of methylated spirit necessary must be adequate to permit the free burning of the mixture of water and spirit.

This method is primarily devised for use on granular soils, and is particularly applicable for the determination of moisture content of sands for concrete.

M. G. Dempster
Canterbury, Victoria
Australia.

Trucking fill is cheaper

Sir: In your Aug. 30, 1951 issue, p. 45, under "Reader Comment," Harry W. Gahagan writes on rubble cost in connection with the extension of the Outer Drive north of Foster Ave. in Lincoln Park, Chicago, Ill. In order that your readers may not be misinformed on this matter, the following facts are submitted:

1. Excavation for the Congress Street superhighway is a necessary part of the construction work and will involve trucking over city streets regardless of the dump location. The city recently opened bids for 73,000 cu yd of excavation on Congress St.; the low bid for the work with disposal at Foster Ave. being $1.10 per cu yd, as against a bid of $1.30 per cu yd for disposal at a dump other than Foster Ave. This indicates a saving of 20c per cu yd to the city because of the availability of the Foster Ave. site for disposal instead of an added cost of $1.92 per cu yd, for hauling only as mentioned in the subject article.

2. Inestimable damage to city streets was mentioned. It must be remembered that city ordinances limit the loads trucks may haul, that city streets are designed with these loads in mind and that the streets are carrying such loads in every day commerce. City streets fail to fulfill their full purpose if they do not provide an avenue of transportation for such trucking.

3. When the bid for sand fill for the Foster Ave. work was rejected and the idea adopted of using excavation from Congress Street (and other construction work in Chicago) as fill, it was necessary to redesign the enclosing bulkhead as a self-supporting structure, that is, one not dependent on fill for stability in the open lake. The additional cost of the self supporting structure is $415,000; not $850,000 as your article mentioned. The article is correct in stating that if sand fill had been used, it would have been brought in by boat. It was never the intention to truck sand fill to the site.

4. The Park District's claim for a saving of $1,500,000 over the original plan, in the light of bids received on sand fill and on fill from Congress St., is still valid.

Geo. T. Donoghue
General Superintendent
Robert A. Black
Chief Engineer
Chicago Park District
Chicago, Ill.

Lignite preprocessed

Sir: I notice that there is some reference made in your article in the October 4 issue of EN-R to the lignite-burning plant to power the new Alcoa plant here at Rockdale, Texas. It would probably clarify the matter for your readers if you would tell them that the lignite is to be preprocessed to conserve the synthetics so-richly-contained in it; by a new process developed in the laboratories at Denver, Colorado. I refer you to an article in the DENVER POST of Sunday, September 9, 1951. . . . This by-product process is the first commercially feasible for production of coke or of power plus the chemicals which are locked up in the lignite. It is a result of the BuMines and others' research in both the fields of synthetic oil and synthetic coal.

The process is operated through the agency of partial combustion of the lignite which gives off the by-products as gases and the carbon for coke or for burning. . . . This process is said by the Post to give a final cost of a small fraction of a cent per kwh. . . . Almost as cheap as atomic power.

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President Colorado Dredging Co.
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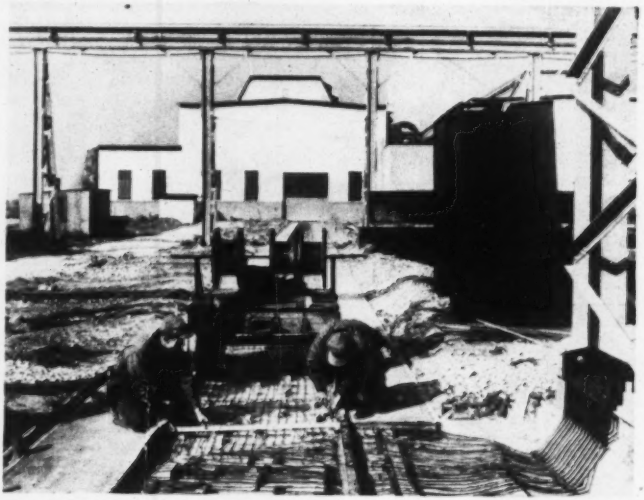


SLAB WARMER—Workmen place heater cable on top of reinforcing mesh, preparing crane yard transport runway for concrete.

Electric cable melts snow

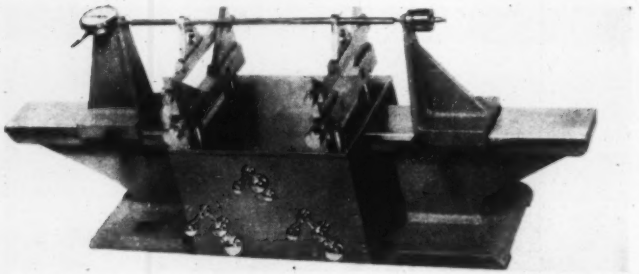
A variation of the now-familiar heating systems for keeping concrete slabs free of snow was tried last winter with evident success.

The slabs are four transport runways in a crane yard at the Bucyrus Erie Co.'s South Milwaukee plant.

Instead of putting hot-liquid pipes in the concrete, plant engineers put in heating cables—flexible lead-covered resistance wires. These were placed at 3-in. centers, on top of reinforcing mesh 2½ in. below the concrete.

Total length of heating cable is 40,000 ft. Because individual cable lengths are non-standard, it is necessary to serve them with odd voltages. This has been done by making up special transformers with secondary voltages ranging from 180 volts for the shortest runway to 500 volts for the longest.

The heating cable met its greatest test to date late last winter when it was put into operation after a weekend of snowfall. The temperature was 11 deg below zero, but the runways were clear in a few hours. Tile drains along runway edges provided adequate drainage for melted snow.



CONCRETE EXPANSION TESTER—Micrometer-Comparator measures contraction or expansion of concrete specimens to variations as small as 0.0001 in. It is used to determine length changes of mortar or concrete specimens, and was produced for the U. S. Corps of Engineers, Portland District. The device will be used in connection with tests on chemical reactions, heat expansion, and resistance to weathering. The machine was produced for the Army by: Leupold & Stevens, Instruments, Inc., Portland, Ore.

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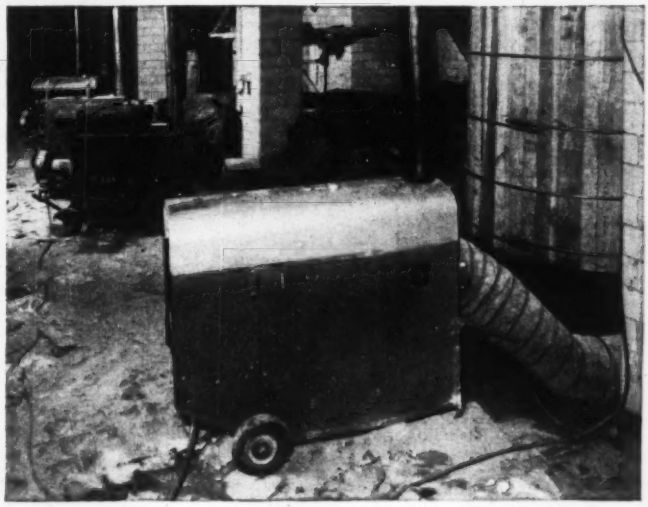

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2. It saves construction time. Since frame and floor construction proceed simultaneously, masons, plumbers, electricians and other tradesmen can do their work as the structural job progresses.

3. It allows great latitude in design. Partitions can be located where they are most desirable and columns can be placed wherever convenient to leave maximum usable space. Regardless of structural requirements there is a type of concrete frame and floor construction for every job. Such construction is ideally adapted to apartments, hospitals, schools, hotels, industrial plants and office buildings.

A typical example of concrete frame and floor construction is Fordham Hill Houses illustrated above. This project, owned by the Equitable Life Assurance Society of the United States, consists of six 16-story, two 15-story and one 14-story building.

This 1,118 apartment development in New York City required more than 40,000 cu.yd. of concrete in the frames and floors—enough to build an average 24-ft. highway about 13 miles long. Leonard Schultze and Associates, architects; J. DiStasio & Co., structural engineers; Starrett Bros. & Eken, contractors, all of New York City.

Our technical staff will gladly help architects and engineers attain the highest quality concrete and the maximum structural advantages of reinforced concrete construction for any building project.

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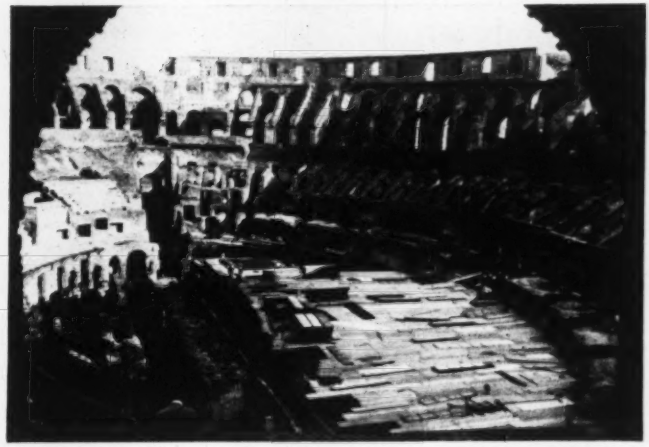
INTERNATIONAL



AFTER 2,000 YEARS—A wooden-floor is laid in Rome's famed Colosseum in preparation for a series of popular concerts to feature the music of Verdi, Bellini, Donizetti and Rossini, singers replacing gladiators. This is the first modern use to which the ancient ruin has been put. This Flavian amphitheater, known as the Colosseum from its colossal size (5 acres), originally could seat 87,000 spectators. It was begun by the Emperor Vespasian and finished by Titus in the year 80 A.D. When it was dedicated 5,000 wild beasts were slain in the arena, where later many Christian martyrs suffered for the amusement of the Roman populace. Down through the ages it was used as a "quarry" for building stone, but much of the original stonework remains.—Wide World Photo

A large oil refinery planned for Australia

Although the Anglo-Iranian Oil Co. does not seem to have much of a future in Iran, it has big plans for Australia. A report from Melbourne is that the company is about to build the biggest oil refinery in the island continent at a cost of about $100,000,000.

It is said that the construction of this refinery was decided upon as an answer to the attempts of American companies to capture the Australian market. Shell, Caltex and Vacuum have recently announced plans to enlarge refineries and to construct new ones in Australia. Anglo-Iranian is a partner with the Commonwealth of Australia in the Commonwealth Oil Refineries, better known as CRO. This company has a refinery at Laverton, Victoria, but the productive capacity of their new project will be some 25 times greater than the Laverton unit.

It is not yet certain in which location the new refinery will be built. However it is said that it would take two or three years to complete the construction and that capacity would be between 2,000,000 and 3,000,000 Imperial gallons of crude oil a day.

It is expected that some skilled personnel from the Abadan refinery in Iran would be employed in this new unit in Australia.

LITTLE AMERICA IN GERMANY—Nearing completion, this housing project, near Bonn, Germany, will house Americans and Germans employed by the U. S. High Commission, and their families. Bonn residents call the project "Little America." The apartments will be completely furnished. The project will include a movie theater, a shopping center and a central heating system. German contractors constructed the buildings for the High Commission to house its employes after the commission's scheduled move from Frankfort to Bad Godesberg.—Wide World Photo

• **Southern Italy development**—A loan of $10,000,000 to aid in the development of southern Italy has been made by the International Bank for Reconstruction and Development. It is guaranteed by the Italian government. Nearly one-half of total expenditures will be devoted to reclamation and irrigation of land along the coast and in the river valleys. Part of it will be for aqueducts, construction and rehabilitation of provincial roads.

• **Help for Yugoslavia**—A $28,000,000 loan for 25 years has been made to Yugoslavia by the International Bank for Reconstruction and Development. It will benefit all sectors of the country's economy by providing equipment for productive undertakings, including electric power distribution, manufacturing industries, use of forest resources, and transportation.

• **Colombian pipeline** — Williams Brothers Corporation is building a 140 kilometer pipeline from Puerto Salgar on the Magdalena River to Bogota, Colombia's capital. Starting at an altitude of 174 meters above sea-level, the line reaches its highest point at LaTribuna, 2,734 meters above sea level, then falls off to about 2,570 meters near Mosquera and rises again to somewhat over 2,600 meters at the terminal west of Bogota. The pipeline will consist of steel pipes of 6⅝ in. diameter. In the beginning there will be three pumping stations, so that the pipeline will be able to handle 8,850 barrels in 24 hours. But it is planned to increase this capacity with additional pumping stations to 22,800 barrels. This pipeline, to be completed in March, 1952, will solve Bogota's serious gasoline problems. The railroad Bogota-Alban-Puerto Salgar is often interrupted because of landslides and Bogota is then virtually cut off from all fuel supplies.

MUNICIPAL

How some cities help motorists answer perennial query, "Where can I park?"

Here are parking problem solutions now being offered or suggested in various parts of the country:

• **Chicago, Ill.**—By a vote of 47 to 2, the city council has approved a plan for five investment firms to study off-street parking possibilities for the Loop, and the financing, through the sale of revenue bonds, of the construction of city-owned parking garages. A project to build five underground garages accommodating 3,100 automobiles in the Loop has been proposed by Virgil E. Gunlock, commissioner of subways and superhighways. The cost is estimated at $11,000,000. If the city accepts the plan of the investment firms and asks for bids, the companies will receive 1¼ percent of the cost of underwriting the project. They receive nothing if they produce no acceptable plan.

• **Portland, Me.**—The city is clearing the way for construction of an off-street parking area near Monument Square. The space will cover three-quarters of an acre. Several buildings will be razed, the work to start early in 1952. The project will be financed by the Monument Square Parking Co.

• **San Francisco, Calif.**—Preliminary construction plans for a large garage underneath the Civic Center Plaza, have been presented to the city's parking authority by the Ramp Buildings Corp. of New York. The 2,075-car structure would be built on three levels, and cost an estimated $5,780,000. However, the structure would have more than 25 percent more space than at present needed and that might militate against its successful financing. An interesting feature of the plan is that drivers would park their own cars.

• **Akron, Ohio**—Plans for a multi-deck, city-owned parking garage will be abandoned, as a result of a survey by Collins DiBoll, Jr., of DiBoll and Kessels and Associates, of New Orleans, who said such a project would not be a paying proposition. He said the proposed location for the Akron venture is virtually out of the main business district and night use of the garage would be definitely limited. DiBoll said a recently completed $250,000 parking deck in New Orleans makes money only because it is in a location that attracts parking both day and night.

• **Raleigh, N. C.**—The city council has adopted a resolution providing for the establishment of a city parking authority which would have authority to issue 30-year bonds in amounts up to $3,000,000 or notes up to $50,000 for a five-year period, to provide off-street parking facilities in any way it sees fit.

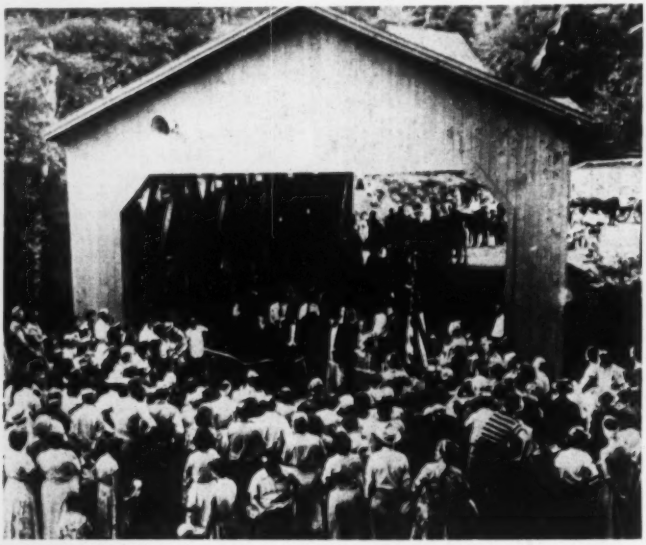
• **Baltimore, Md.**—Expansion by 90 spaces of an off-street parking facility in the heart of the downtown district has been proposed by Baltimore's off-street parking commission. The commission already had approved the project in the 200-block of West Saratoga Street and in the 200-block of Clay Street for an elevator-type parking garage of 250-car capacity. The commission told the Board of Finance Commissioners it now was found desirable to include three more properties on Clay Street in order to provide ramps leading to the five-story garage. The change, proposed by the operator, Retail Parking Center, Inc., has been approved by the commission. Total cost of the project will be $835,000. The operator puts up 15 percent and the city provides the balance out of commission loan funds.

• **Quincy, Mass.**—The success of the first municipal off-street parking facility here, a metered lot for 575 automobiles in the business center, has led to plans for expansion. Included in the surveys now being made by Ramp Buildings Corp., New York City, are areas in the central business district and the outlying Wollaston and Norfolk Downs sections of the city.

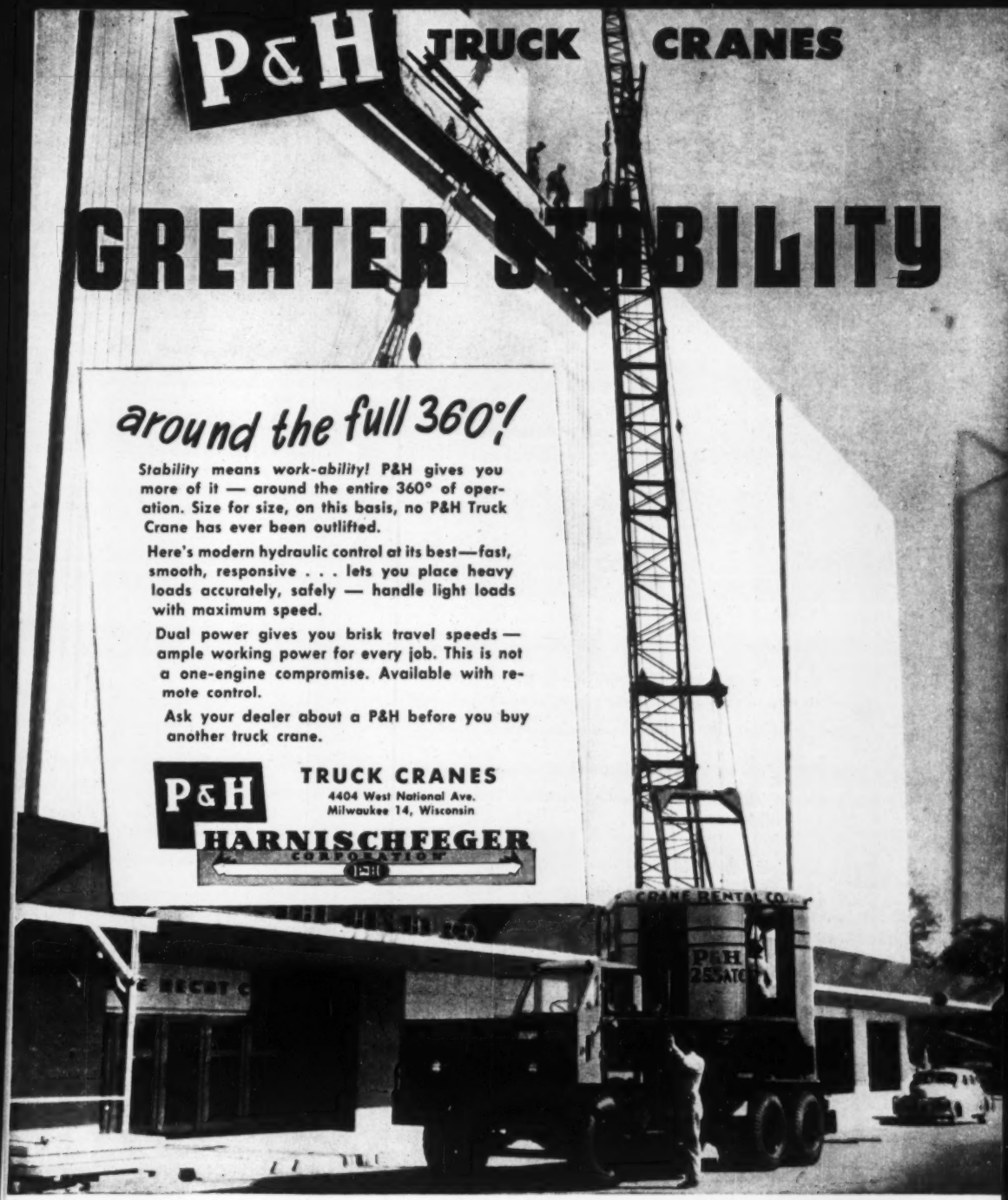
• **Milwaukee, Wis.**—In the first 15 months of renting curb space to motorists unable to find a garage in which to park their automobiles overnight, Milwaukee has netted more than $300,000, the International City Managers' Association, Chicago, reports. The revenue, to be used for the purchase and development of off-street parking lots, is gained through the sale of monthly permits to park on the street at night if parking space or a garage is not available within two blocks of a motorist's home. The fee is $4 a month and the permits must be displayed on the cars.

• **Indianapolis, Ind.**—A $3,500,000 parking lot and garage program to relieve jam-packed Mile Square is under study by the Off-street Parking Commission. A suggestion for three parking lots and three garages was made as part of the answer to an estimated need for 16,620 parking spaces for 22,690 motorists in the next decade. All construction would be financed by

(*Continued on page 50*)



NEW OLD BRIDGE—Townspeople of Charlemont, Mass., a tiny village in the foothills of the Berkshires, gather around as their brand new old-time-style covered wooden bridge is dedicated. The structure, only 94 ft long, is believed to be the only covered bridge to be built in New England so far in the 20th century. For sentimental reasons the citizens of the community did not want a concrete, steel or masonry bridge to replace their old wooden one, so the state agreed to build a new covered bridge of Douglas fir from Oregon—heavy and strong enough to bear modern traffic—Wide World photo.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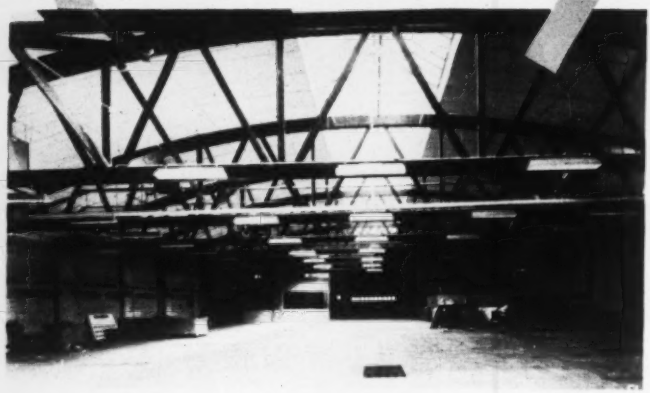
CHICAGOANS SPECIFY TIMBER TRUSSES



For well over 50 years folks in Chicago have been buying timber for commercial and industrial buildings from McKeown Bros. Co. Pictured above are 32 of McKeown's 87′ and 98′ prefabricated bowstring trusses for a Chicago garage.

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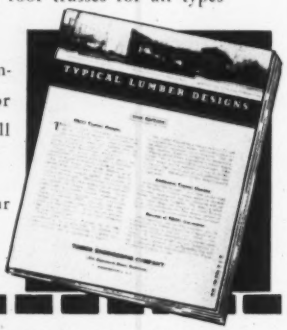

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revenue bonds of the city.

• **Buffalo, N. Y.**—Creation of a permanent parking agency by the city is the top recommendation of the mayor's Off-Street Parking Committee. In a report of findings based on a six-month study of Buffalo's parking problem, the committee headed by Charles R. Diebold, also recommended:

1—State legislation to permit tax exemption on properties where structures are erected or existing buildings altered to provide off-street parking.

2—Constant effort by the city, the Niagara Frontier Transit System, merchants and business in the downtown area to educate shoppers and the visiting public on the convenience and economy of using the public transportation system to a greater extent than at present during shopping hours.

3—Development of an off-street terminal arrangement to remove suburban and interurban buses from certain clogged downtown streets.

The committee's major recommendation called for a permanent board, commission or authority with full power to investigate, develop, recommend the purchase of, lease, operate and manage city-acquired or city-owned parking projects and regulate the use, licensing and policing of privately-owned projects and parking lots.

• **Columbus, Ohio**—This city's huge off-street parking program—which will entail expenditure of $8,000,000 in the first few years, is expected to get under way before the end of this year. A preliminary survey is being made by Parsons, Brinckerhoff, Hall & Macdonald of New York.

• **Mercury-vapor lights**—Seattle has overcome another obstacle to its $4,000,000 program of improving the street lighting system. That program calls for the installation of mercury-vapor lights along every arterial street in the city. Owners of homes along three blocks of an arterial in the Magnolia Bluff district, swankiest in the city, objected. The bright lights along the streets in front of their homes would be "detrimental" to home life and were not needed for traffic safety, they claimed. City Engineer R. W. Finke pointed out that the streets in question are used by transit vehicles. "To leave these blocks out of the proposed lighting system would defeat the purpose of the safety street-lighting program and would open the way to other groups to take similar action," he said. The city council upheld the city engineer, emphasizing that general traffic-safety needs must have priority over the wishes of homeowners.

MEN AND JOBS

PAY ESTIMATE CHECKS—Tullahoma District officials present pay estimate checks, totaling $1,513,231.80, to project managers of firms doing construction work on the Arnold Engineering Development Center at Tullahoma, Tenn. Left to right: L. T. Webb, executive assistant for the Tullahoma District, Corps of Engineers, U. S. Army, presents Samuel T. Jones, project manager for the Hardaway Construction Co. a pay estimate check for $490,878.69; O. C. Deitchman, chief of fiscal branch for Tullahoma District, presents Ernest E. Snyder, project manager for Arundel-Dixon Corp., a check for $511,511.98; and Col. Hugh M. Arnold, district engineer, presents Clifford A. Philo, project manager for Patti-Massman-MacDonald, check of $510,841.13.

New appointments

Highway departments

Geo. L. Jackson is expressway engineer of the Illinois Division of Highways and will supervise and design construction of the state's portion of the Chicago expressways.

Wm. S. G. Britton is maintenance engineer, Virginia highways.

W. C. LeBaugh, Jr., is now resident engineer, Virginia highways at Bowling Green.

Dean Wilson is Missouri state highway maintenance engineer.

Frank L. Stuckey is division engineer, Missouri highways at Hannibal.

E. J. Rowland is engineer of lands and right of way, Minnesota highways. **F. B. Christlieb** is assistant.

Victor H. Benson is District maintenance engineer, Minnesota highways at Duluth.

State, City and County

Deputy Chief Engineer **Harry B. Shaw** has been promoted to chief engineer of the Washington, D. C., Suburban Sanitary Commission, succeeding Harry R. Hall, resigned.

C. C. Townes is city engineer of Colonial Heights, Va.

Harry F. Gaeke has been named superintendent of water distribution at Dayton, Ohio.

Robt. E. Wooten, civil engineer with the North Carolina Department of Conservation, has been promoted to major in the U. S. Marine Corps Reserve.

John Robert Parkerson of Kannarock, Va., has joined the engineering staff of the city public works department at Greensboro, N. C.

Aaron B. Horwitz, chief city planner for Cleveland, Ohio, will take a one-year leave of absence to draw up a master plan for the Tel Aviv-Jaffa area in Israel. **George N. Wallace,** former executive director of the Montgomery County Planning Commission at Dayton, will fill the Cleveland post.

Ernest L. Reisinger has been named Lisbon, Ohio, waterworks superintendent, succeeding John A. Woods, resigned.

Industrial and Commercial

John W. Vanderheide is manager of plant engineering for the G. E. plant at Bucchel, Ky.

W. A. Beckerdite is project superintendent for the J. A. Jones Construction Co. on the construction of a large hospital and nursing school at the University of North Carolina, Chapel Hill.

John H. Pittman, district civil engineer, Humble Oil & Refining Co., has moved from the Houston, Tex., district to the Anahuac district.

Chester W. Campbell has been elected vice-president of the Foundation Co., New York, to be in charge of new business and foreign operations. Formerly he was project manager at Aliveri, Greece.

Robt. N. Zack, formerly staff engineer for the Iowa Natural Resources Council, is now assistant secretary of the A. G. C. of Iowa.

Alan W. Wolff, Inc., Los Banos, Calif., is opening another engineering office at 2846 Fulton Ave., North Cacramento.

Consulting engineers

Irving Quinn, of Liberty Engineering Co., 120 Liberty St., New York City, consulting engineers in the utility, industrial and chemical field, announces admission to partnership of **Emil G. Ruenberg,** formerly head mechanical and chemical engineer of Design Service Co.

The Peoria office of **Beling Engineering Consultants** is now at 1101 Main St., Peoria 5, Ill.

A new partnership of **Duchscherer & Oberst,** consulting engineers, has been formed. Philip E. Duchscherer formerly was chief engineer of the R. S. McMannus Steel Construction Co., Inc., and Alvin J. Oberst was previously associate structural engineer with Thomas H. McKaig, consulting engineer. Their offices are at 266 Bryant Street, Buffalo, N. Y.

Corps of Engineers

Col. Jas. D. Lang has been named district engineer of the Galveston District, replacing **Col. E. I. Davis,** assigned to the Far East Command, Yokohama.

Government agencies

Harold G. Wilm, in charge of flood control surveys at the Pacific Northwest Forest Experiment Station in Portland, Ore., has become chief of the Division of Forest Influences in the Washington office of the Forest Service. He succeeds **Edward N. Munns,** retired. Wilm will coordinate research activities in watershed management, flood control and the relation of climate, soil and water to forests.

Honors

Chas. A. Bissell, recently retired regional engineer, Bureau of Reclamation, region 3, headquarters at Boulder City, Nev., has been awarded the Department of the Interior's distinguished service medal in recognition of his "consistently exception performance of duty and outstanding service in administration."

Fifty years of service in the public interest by a U. S. government agency was recognized with a citation in honor of the National Bureau of Standards which was presented at the City annual National Standardization Conference in New York City, Oct. 22.

PILE FOUNDATIONS

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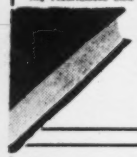
1. **Provides the information required** for the design, driving, and maintenance of pile foundations. Covers the relations between borings, soil mechanics, and pile foundations; the most effective methods for determining pile capacities from driving resistances and friction values; the selection of rigs; the factors affecting choice of pile types; etc. One chapter supplies over 50 actual cases of pile foundation failures, with causes, methods of prevention, and remedies. **By Robert D. Chellis, Structural Eng'r., Stone & Webster Corp., 640 pages, illus., $12.50.**



SOIL MECHANICS, FOUNDATIONS, AND EARTH STRUCTURES

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2. **Covers the theory of soil mechanics,** together with the principles and practices of designing and constructing foundations and earth structures indicating the important relationship of these 3 subjects. Emphasizes experimental data and field observation, giving numerous examples of both successful and unsuccessful structures. Covers the estimation of the shearing strength of soils, lateral earth pressures, the effects of plastic flow, sensitivity of various clays to remolding, etc. **By Gregory P. Tschebotarioff, Prof. of Civ. Eng'g., Princeton Univ. 655 pages, over 400 illus., $6.50**

THE CONSERVATION OF GROUND WATER

Just Published

3. **Presents the results of a survey sponsored by The Conservation Foundation,** providing much information on present development and use of ground water throughout the U. S. For hydrologists, geologists, engineers. Gives basic facts and data, an outline inventory, and maps of total resources. Covers ground water problems resulting from pumping, land settlement and use, irrigation, drainage, waste disposal, etc. **By Harold E. Thomas, U. S. Geological Survey, 321 pp., 3 maps, $5.00**

NOMOGRAPHIC CHARTS

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4. **A collection of 92 time-saving charts for solving everyday problems in general engineering,** mathematics, and the fields of hydraulics, mechanics, thermodynamics, and electrical engineering. Accurate in a range between ordinary slide-rule computation and exact numerical computation. Each chart is followed by a detailed explanation of its use. **By Albert Kulmann, 244 pages, 92 charts, $6.50**

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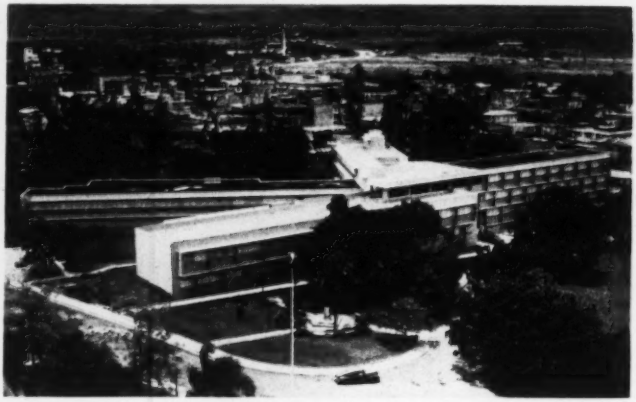

PUERTO RICAN SCIENCE BUILDING—This new building to house the natural science faculty and students of the University of Puerto Rico was recently dedicated. A modern reinforced concrete structure, the building cost approximately $900,000, including equipment. It has Venetian blinds for ample ventilation, and modern illumination for research and teaching of the sciences. The building has laboratories for research. A library equipped with the latest U. S. scientific textbooks will be installed. The faculty of natural science consists of 50 professors, technicians and assistants.

X-ray used in search for better concrete

Better-quality and lower-cost concrete is the aim of a study recently launched by the Waterways Experiment Station of the Army Corps of Engineers at Vicksburg, Miss., with the aid of X-ray diffraction. The study is being undertaken for the Office, Chief of Engineers, with particular emphasis on the quality and cost of concrete used in the civil works program.

Studies by other agencies, including the Bureau of Reclamation laboratories at Denver, Colo.; the Portland Cement Association Fellowship at the National Bureau of Standards in Washington, D. C.; the Kentucky Highway Department Research Laboratories at Lexington, Ky., have indicated that the use of X-ray diffraction methods can be a powerful tool in identifying, classifying, and understanding the properties of materials used in concrete construction.

The apparatus which has been obtained is the latest model XRD-3 developed by the X-Ray Department of the General Electric Co., Milwaukee, Wis., and is designed to be used either for making photographic records of X-ray diffraction patterns or for the direct recording of diffracted rays on a strip chart.

The installation at the Waterways Experiment Station includes all the facilities needed to prepare photographic records. One valuable characteristic of the apparatus is the fact that very small samples weighing only a few hundred-thousandths of an ounce are used to obtain the diffraction data. This fact will permit the selection for study of tiny portions of very fine grained materials such as admixtures for concrete, cements, hydrated cements, and clays. Some of these materials cannot be satisfactorily studied and identified by the usual microscopic or chemical methods.

Col. H. J. Skidmore is director of the Waterways Experiment Station, Herbert K. Cook is chief of the concrete research division, and Mrs. Katharine Mather is chief of the petrography section in which the apparatus will be used.

Water resources building dedicated at Illinois

The dedication of the Water Resources Building, University of Illinois, took place recently and brought together a group of scientists whose special studies lie in the fields of water supplies, hydrology, water treatment, ground water, rainfall, radar weather and associated topics concerned with the supply of water to the farms, homes and industrial plants of the state of Illinois.

(*Continued on page 55*)

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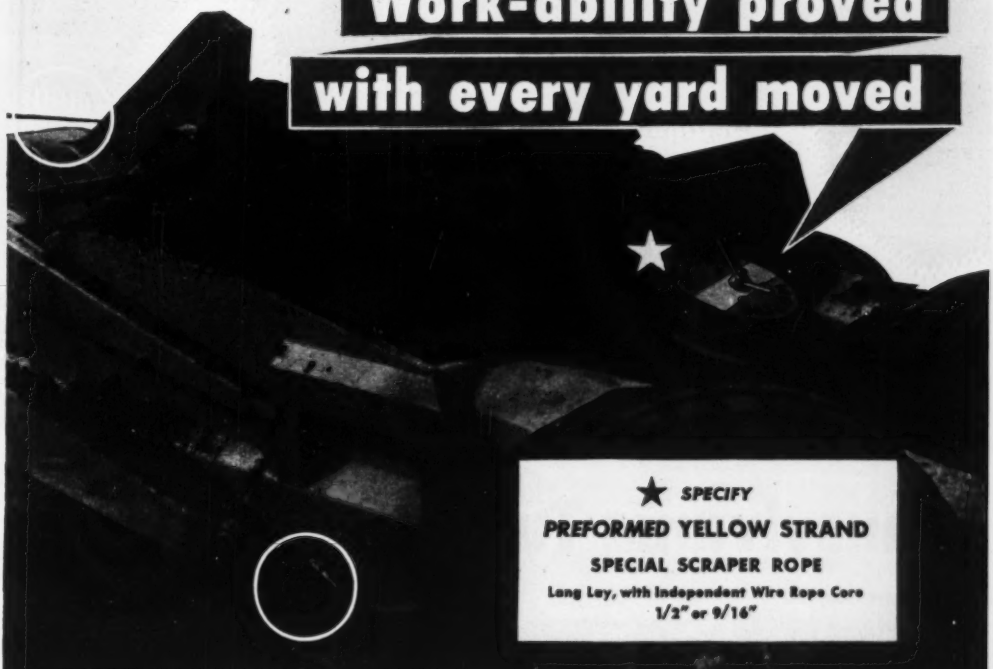

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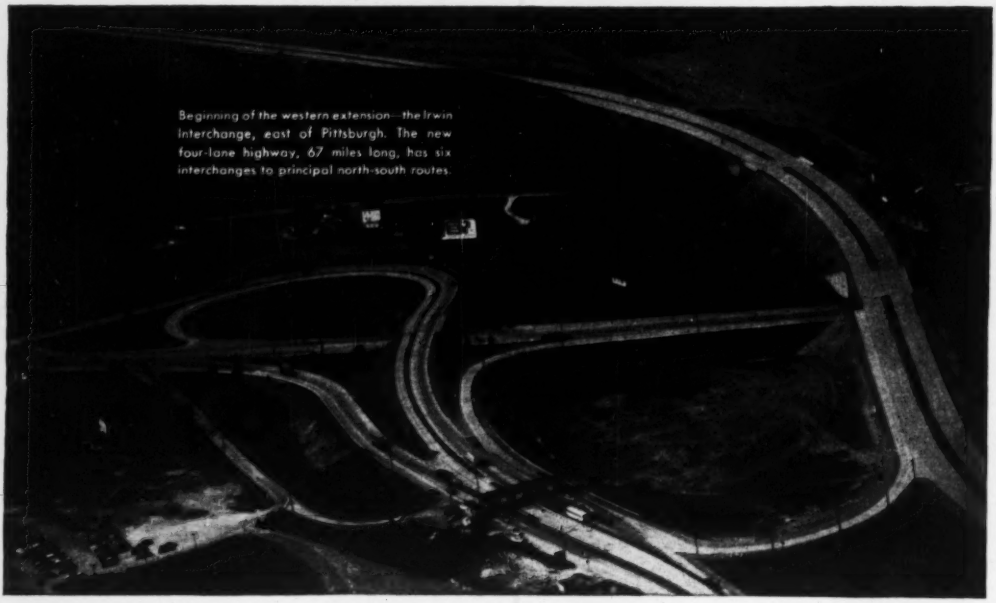
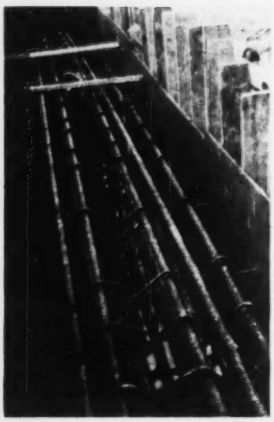


Beginning of the western extension—the Irwin Interchange, east of Pittsburgh. The new four-lane highway, 67 miles long, has six interchanges to principal north-south routes.

Pennsylvania Turnpike Goes West



F. Y. Dunn (left), resident ▶ engineer, Pennsylvania Turnpike Commission, and W. S. "Buckets" Bell (right), paving superintendent, talk over the job with Contractor Frank Mashuda.

◀ Close-up of Bethlehem Reinforcing Bars installed in bridge. Bars have high, closely-spaced lugs to prevent slippage in concrete.

▼ Graded surface is dampened before first-course pouring. Bethlehem Dowel Unit, in foreground, keeps dowels accurately aligned in concrete, horizontally and vertically. Hook bolts visible at left.

WITH the opening of the western extension of the Pennsylvania Turnpike System, motorists now may enjoy 327 miles of uninterrupted express-highway driving from King of Prussia, near Philadelphia, to the Ohio border.

Smaller pictures here show construction on a portion of the Turnpike north of Pittsburgh. The contractor was Frank Mashuda Company, Milwaukee. Bethlehem, well represented along the entire Turnpike, supplied dowel units, bridge reinforcing and hook bolts.

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Timber Bridge Hardware • Tie-Rods
Sheet- and H-Piling • Fabricated Structural Steel

BETHLEHEM STEEL

Education Research . . .

The new building cost $400,000. The studies undertaken therein are under the general direction of C. Hobart Engle, director of the Illinois State Department of Education and Registration, with A. M. Buswell, chief of the water survey division.

Among the prominent scientists on the several programs were Hans A. Einstein, professor of mechanical engineering, University of California, whose special field is water sedimentation. (He is son of Albert Einstein.)

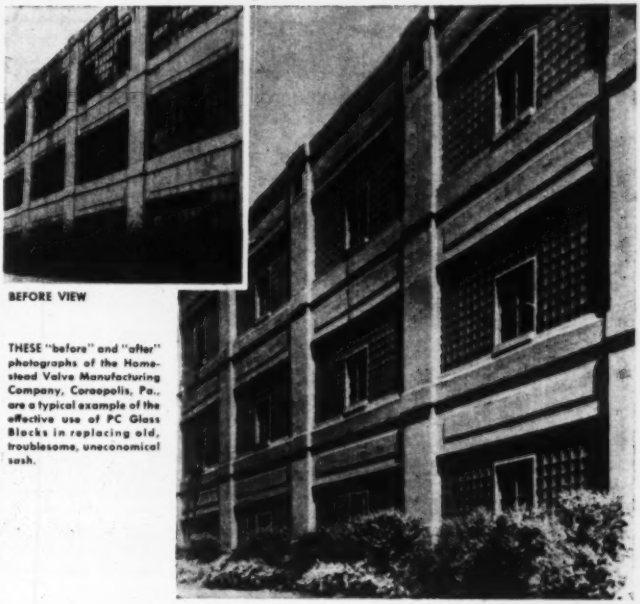
E. D. Bowen, of Australia, a radar weather specialist, was the principal speaker on the radar-weather section program. Other speakers—A. S. Fry, Knoxville, Tenn., chief hydraulic engineer, Tennessee Valley Authority; R. G. Snider, New York, director, National Conservation Foundation; L. R. Howson, Chicago, member of the Illinois State Water Board; Richard Hazen, New York; W. F. Guyton, Austin, Tex.; and S. W. Jens, St. Louis, water engineer.

Town planning course offered at Toronto

University of Toronto has started a town planning course in conjunction with the Canadian government's Central Mortgage & Housing Corporation, and the Ontario government's Department of Planning and Development. The course will not lead to a degree but is offered to graduate students working towards master's degrees.

Students in engineering, architecture, and social work are expected to attend the lectures and discussions. Miss Jacqueline Tyrwhitt, formerly director of the London School of Planning, London, England, and a visiting professor at Yale last year, will join the University of Toronto staff as a visiting professor. Lectures will include civil engineering, architecture, geography, social work and political economy. Each student will spend a summer on field work, and a research project on Ontario town planning problems is to be completed by the class.

• **Topographic engineers**—Men in civil life, either veterans or others with a degree of civil engineering, geology, or photogrammetric engineering can now enter the Air Force directly as officers, with a topographic engineer commission. This announcement was made at First Air Force headquarters at Mitchel Air Force Base, New York, by Maj. Charles D. Morat, Jr., Director of Military Personnel Procurement.



BEFORE VIEW

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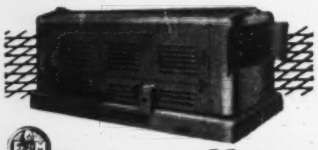

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3,300 lbs.
4,000 lbs.
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MEETINGS

New officers of the American Association of State Highway Officials are: President, B. D. Tallamy, superintendent, N. Y. State Department of Public Works; 1st vice-president C. M. Ziegler, Michigan highway commissioner. Regional vice-presidents: F. D. Merrill, New Hampshire; W. G. Pruitt, Alabama; Mark V. Watrous, Colorado. New executive committee members: D. C. Greer, Texas; G. T. McCoy, California; P. H. Kitfield, Massachusetts; R. N. Smock, Pennsylvania; and E. R. White, Iowa. G. H. Henderson, Rhode Island, is treasurer; and Hal H. Hale, executive secretary.

Awards made at the annual meeting of the Federation of Sewage and Industrial Waste Associations in St. Paul, Minn., Oct. 10 were as follows: The Harrison Prescott Eddy Medal, (For an Outstanding Contribution in Research) Peter S. S. Dawson, Samuel H. Jenkins; The George Bradley Gascoigne Medal (For an Outstanding Contribution in Plant Operation) Leonard S. Hillis; The Charles Alvin Emerson Medal (For Meritorious Service to the Federation) Howard Eugene Moses; The Industrial Wastes Medal (For an Outstanding Contribution in Industrial Wastes Control) Bruce W. Dickerson; The William D. Hatfield Awards (For Outstanding Operation Reports) William L. Edwards, J. E. Meers, John R. Szymanski, George H. Craemer, Kerwin L. Mick. J. F. Carrothers of Bardstown is president of the Kentucky Primary Highway Federation formed to get better roads for that state.

Georgia Highway Association officers are: Milton Arden, president; John W. Thompson, vice-president; J. D. Clark, 2d vice-president; and Cliff Davenport, secretary-treasurer.

Paul E. Klopsteg, professor of applied science and director of research of the Northwestern Institute of Technology has been made assistant director of the National Science Foundation for the division of physical, mathematical and engineering sciences.

New officers and directors of the Washington, D. C. Building Congress President, Thomas Hall Locraft; Vice-presidents: Robert W. McChesney and Frank H. Haines, William A. Johnson is the new secretary. W. A. H. Church, is treasurer. Two new directors joined the five men continuing in office. Julian E. Berla of the firm of Berla & Abel and Maurice R. Palmer of A. P. Woodson Co. will serve until 1954. Other directors are Maurice R. Colbert, Maurice J. Colbert Co.; C. W. Humphreys, Mohler Construction Co.; Dean J. Loche, Capital Transit Co.; C. F. Preller, Electrical Worker's Union; A. Hamilton Wilson, architect.

William W. Huggett has been elected president of the newly-created Chicago Regional Port Authority. He is president of the North Pier Terminal Co., Chicago. Philip D. Fitzgerald, of the Fitzgerald and Hickey engineering firm, Chicago, is the temporary secretary, and Allen L. Fox, city engineer of Blue Island, temporary treasurer. The board's duty under state law is to develop harbors facilities for the Lake Calument industrial area. It was voted an appropriation of $40,000 by the legislature for organizing an administrative and engineering staff.

The Metropolitan section of the American Society of Civil Engineers inaugurated its winter season on Oct. 17 with a talk by Maj. Gen. Lewis B. Hershey, director of the Selective Service system on "The Current Problems of Engineering Manpower."

The North Carolina section of the American Society of Civil Engineers has elected Carroll L. Mann, Jr. of Greensboro president. Other officers: P. D. Davis, senior vice-president; E. B. Rice, junior vice-president; Ralph E. Fadum, secretary-treasurer.

Street Maintenance and Sanitation Officials of Ohio has elected Albert Peterson, Youngstown city street superintendent, as president. Other officers are: C. E. Brokaw, Cincinnati, vice president; and William Kaser, Akron, secretary-treasurer.

CALENDAR

Tennessee Valley section American Society of Civil Engineers, annual meeting, Knoxville, Nov. 16-17.

American Concrete Pipe Association, short course school, Edgewater Beach Hotel, Chicago, Nov. 26-28.

Conference on Atomic Installation in Buildings, Building Research Advisory Board. (Laboratory design for handling radioactive materials) National Academy of Science auditorium, Washington, D. C. Nov. 27-28.

Southeastern Association of State Highway Officials, annual meeting, Charleston, S. C., Dec. 6-7.

Bituminous Concrete Producers Association, annual convention, The Roosevelt Hotel, New York City, Dec. 6.

Highway Research Board, annual meeting, National Academy of Science Bldg., Washington, D. C., Jan. 15-18.

Canadian Construction Association, annual meeting, Royal York Hotel, Toronto, Ont., Jan. 20-23.

American Road Builders Association, Golden Anniversary, Rice Hotel, Houston, Tex., Jan. 21-24.

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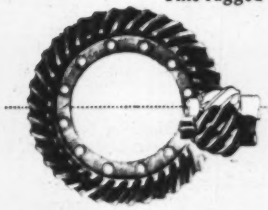

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OBITUARY

William Forrest Angus, 78, president of Dominion Bridge Co. Ltd., and of Dominion Engineering Works, Ltd., died at Senneville, Que., Oct. 14. The son of R. B. Angus, one of the original promoters of the Canadian Pacific Railway, Mr. Angus was a civil engineer graduate of McGill University, Montreal. In 1896 he started with the Dominion Bridge Co. as an engineer and draftsman. In 1911 he became vice-president and managing director of Canadian Steel Foundries, in 1917 vice-president of Dominion Bridge, and its president in 1936. He was a director of many important Canadian companies and was well known as a philanthropist.

Lester C. Hite, 60, general superintendent for the Ring Engineering Co., Washington, D. C., died in Pittsburgh, Pa., Oct. 20.

Oliver N. Rinehart, 45, retired U. S. Army colonel and District 3 engineer for the West Virginia Road Commission with headquarters in Parkersburg, died Oct. 9. A graduate of the West Virginia University school of engineering, Colonel Rinehart received six citations for gallantry in action during World War II. He became affiliated with the road commission in 1946 following his retirement from the armed services in 1945.

Ernest Chanteloup Girouard, 68, civil engineer and long with the technical service branch of Montreal, Que., died Oct. 19. He was graduated from Royal Military College in 1905 and worked as a civil engineer on the federal hydrographic surveys and on railway construction. He became vice-president of Jones, Girouard Company, Ltd., contracting engineers.

Robert Isham Randolph, 70, retired civil engineer, died at Santa Barbara, Calif., Oct. 18. He studied at Cornell University and was an assistant engineer of the Chicago Sanitary District from 1904 to 1907. He held important positions in the civic life of Chicago. He was leader of the "Secret Six," a citizen committee fighting gangsterism in Al Capone days. Colonel Randolph was a veteran of both world wars, and was in command of the 381st Engineers with the AEF in France.

Edmond J. Downing, 51, a civil engineer employed by the Bethlehem Steel Co. in Lackawanna, N. Y., died Oct. 18 in Buffalo. He was graduated with a civil engineering degree from Lehigh University in 1922. He started

with Bethlehem Steel and was transferred to Lackawanna in 1923.

Martin H. Ahlvin, 59, former city engineer of Joliet, Ill., and former assistant state engineer of Illinois, died Oct. 18. He had also served as consulting engineer on sewer and water construction for Joliet Township, Joliet, Ill.

Henry P. Conway, 65, assistant civil engineer in the New York State Department of Public Works, died in Kingston, N. Y., Oct. 15. He had been working out of the department's Poughkeepsie office, supervising construction of a portion of the Thruway. He directed construction of the first section of the Thruway completed in the state. Mr. Conway joined the Department of Public Works in 1904.

William Jay Parkes, 80, who served as city engineer for Bessemer, Ala., 1901 to 1906, died in Shreveport, La., Oct. 17. Some years ago he moved to Pine Bluff, Ark., and was city engineer there for several years, and in private practice in that city. He was a graduate in engineering of the University of Alabama, and served as a captain in the Spanish American War.

George W. Thomas, 62, research engineer for Truscon Steel Co., Youngstown, Ohio, died Oct. 15.

Edward A. Ballard, an engineer of the Massachusetts Department of Public Works, was killed by a hit-and-run automobile on Oct. 18 while at work in Sturbridge, Mass.

W. E. Moore, 57, vice-president of Forcum-James Co., died Oct. 19 in Dyersburg, Tenn. The contracting firm of which Moore was vice-president has built roads and levees in most sections of the South. It also was co-contractor during World War II of Camp Livingston in Louisiana, a $23,000,000 project.

L. O. White, 33, of Statesville, N. C., surveyor for Iredell County, died Oct. 14.

Richard W. Bolling, 72, founder of the Washington, D. C., construction concern, R. W. Bolling Co., died in Washington Oct. 18. He was a brother of Mrs. Woodrow Wilson.

Andrew Luffbarry, 79, a civil engineer, with the United States Army Engineers at Philadelphia died there on October 18. Mr. Luffbarry during the Second World War was area engineer stationed at Fort Dix, N. J. He served as a captain during the First World War.

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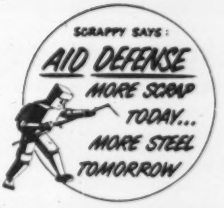

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UNITED STATES STEEL

CONSTRUCTION BUSINESS

Contract awards up 11.7% in month—October total 8% over last year

Construction contracts awarded during October totaled $1,026,973,000—up 11.7% over award totals for September, 1951 and 8% higher than the contract award total posted in October, 1950, ENGINEERING NEWS-RECORD reports showed.

Although public construction and federal awards declined in October, the decreases here were easily offset by the rise in private construction which was $98 million higher in October than in September.

• **Public awards strong**—For the first ten months of this year, ENR reports show federal work up 101% over the same period last year, public construction up 33% and private construction up 9%.

The ten-month total for public construction is $5,453,689,000, compared to $4,112,052,000 during the same period in 1950. Federal government contract awards, for the same categories covered in public construction, total $2,037,658,000 this year, compared to $1,012,295 in 1950.

In private construction, the awards total $6,297,726,000 for the first 10 months of 1951 as against $5,802,890,000 for the same period last year.

• **Heavy volume**—Leaders in the public works contract awards category are unclassified construction, now 163% above the comparable 1950 period, and public housing, up 124%.

Other public construction gains noted are public buildings, up 33% over the first ten months of 1950; earthwork and waterways, up 29% and sewerage up 18%. Waterworks contracts are 9% below last year and streets and roads have fallen off 6%.

Private construction awards are still being paced by the high-stepping industrial category which has already rolled up a ten month award total of $3,558,466,000—up 160% over the comparable 1950 period.

The only other gain in the private construction field is in bridges, which are now 20% over 1950. Meanwhile, commercial construction, residential, is down 42%, other commercial construction has slipped 35% below 1950 and private unclassified construction is down 30%.

• **South gets business**—Geographically the South is now 56% ahead of the contract award total for that section in 1950. The Middle West is also getting its share of construction. It is 35% over the same period last year. New England construction this year is 26% over 1950; the states west of the Mississippi, 13% up and the Far West, 11% up.

The only section of the country which shows a decline from the 1950 award total is the Middle Atlantic group of states—now 7% under the same ten months of 1950.

Construction costs show fractional increases

Construction costs held to very small fractional gains for November, according to Engineering News-Record's Construction Costs and Building Costs indexes.

The Construction Cost index stood at 547.16 for November, a rise of 0.01% over October; the Building Cost index was 404.50, a rise of 0.2% over October. Both indexes were moderately above the figure for the comparable month of 1950, Construction Costs being up 3.4%, Building Costs up 3.7%.

Slight gains in the price of the two classes of lumber included in the indexes, and in rates for skilled labor accounted for the small upward movement of the indicators.

The ENR 20-cities' average on Fir 2 x 4's was quoted at $107.222 per mfbm, a gain of 0.4% over the $106.833 reported for October; the quotation on Pine 2 x 4's (per mfbm) was $91.683, also a 0.4% gain over the $91.333 reported for October.

The 20-cities' average for skilled labor set the rate at $2.728, a gain of 0.3% over the report for October. There was no change in common labor rates.

(Also see Scoreboard, p. 19)

Cost index up 3 points

Smith, Hinchman & Grylls, Inc., architects and engineers, of Detroit, reported that their Building Cost Index for October was up three points over September, and now stands at 260.

(Also see Scoreboard, p. 19)

ENGINEERING CONSTRUCTION CONTRACTS REPORTED TO ENGINEERING NEWS-RECORD—OCTOBER, 1951

Engineering News-Record *reports continental U. S. Construction projects of the following minimum costs — Waterworks, excavation, drainage and irrigation,* $34,000; *other public works,* $60,000; *industrial buildings,* $82,000; *other buildings,* $300,000
Four Weeks — Thousands of Dollars (000 Omitted)

	October, 1951						U. S. Cumulative Ten Months		% Change	Canada October
	New England	Middle Atlantic	South	Mid-West	West of Mississippi	Far West	Total U. S.	1951	1950	'50 to '51	1951
Public Works											
Waterworks	546	2,295	2,638	337	3,546	2,501	**11,863**	**173,869**	191,252	− 9	731
Sewerage	1,119	8,036	2,071	6,906	5,308	1,981	**25,421**	**269,969**	229,254	+18	475
Bridges	760	8,539	4,380	731	3,507	2,256	**20,173**	**263,565**	308,622	−15	.....
Earthwork and waterways	97	456	1,849	339	5,436	5,624	**13,801**	**436,387**	337,265	+29	752
Streets and roads	3,556	8,351	20,062	15,759	21,979	15,334	**85,041**	**1,001,093**	1,065,214	− 6	1,601
Public buildings, residential	.....	1,169	6,202	8,490	1,974	1,094	**18,929**	**576,951**	257,586	+124	2,444
Other public buildings	11,881	34,162	14,644	43,339	16,994	14,841	**135,861**	**1,853,117**	1,388,938	+33	4,486
Unclassified	1,804	1,812	15,129	19,628	6,519	17,614	**62,506**	**878,738**	333,921	+163	12,904
Total public	**19,763**	**64,820**	**66,975**	**95,529**	**65,263**	**61,245**	**373,595**	**5,453,689**	**4,112,052**	**+33**	**23,393**
Federal government (included in above classifications)	4,825	4,046	15,759	52,239	12,119	22,353	**111,341**	**2,037,658**	1,012,295	+101	9,731
Private											
Bridges	.....	.....	67	.....	.....	.....	**67**	**11,725**	9,745	+20	.....
Industrial buildings	8,356	59,440	101,284	82,917	65,461	87,653	**405,111**	**3,558,466**	1,366,614	+160	21,519
Com'l. buildings, residential	5,600	68,564	31,256	17,900	36,792	6,189	**166,301**	**1,626,143**	2,786,774	−42	9,892
Other commercial buildings	3,950	5,025	8,694	7,652	5,069	3,403	**33,733**	**532,114**	823,816	−35	2,500
Unclassified	.....	1,782	2,404	2,492	41,336	152	**48,166**	**569,278**	815,961	−30	750
Total private	**17,906**	**134,811**	**143,705**	**110,961**	**148,598**	**97,397**	**653,378**	**6,297,726**	**5,802,890**	**+ 9**	**34,661**
Total Engineering Construction:											
October, 1951 — 4 weeks	**37,669**	**199,631**	**210,680**	**206,490**	**213,861**	**158,642**	**1,026,973**	.....	.....	.....	**58,054**
September, 1951 — 4 weeks	43,968	127,004	165,769	135,426	325,993	118,998	**917,158**	.....	.....	.....	140,700
October, 1950 — 4 weeks	20,192	173,397	139,376	218,718	305,644	93,199	**950,526**	.....	.....	.....	119,276
Ten Months — 1951	**544,697**	**2,176,953**	**2,448,664**	**2,066,775**	**2,840,469**	**1,673,857**	.....	**11,751,415**	.....	**+19**	**1,030,383**
Ten Months — 1950	431,869	2,351,620	1,574,066	1,533,693	2,518,014	1,505,680	.....	.....	9,914,942	.....	623,716
% Change '50 to '51	+26	−7	+56	+35	+13	+11	.....	.....	.....	.....	+65

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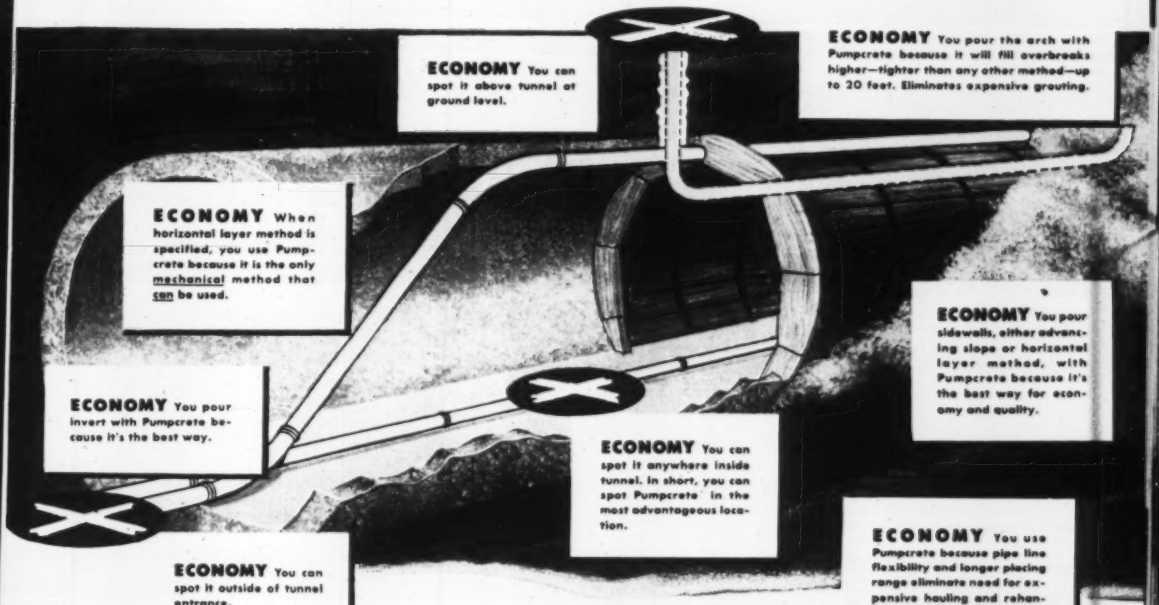

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ECONOMY You pour the arch with Pumpcrete because it will fill overbreaks higher—tighter than any other method—up to 20 feet. Eliminates expensive grouting.

ECONOMY When horizontal layer method is specified, you use Pumpcrete because it is the only mechanical method that can be used.

ECONOMY You pour sidewalls, either advancing slope or horizontal layer method, with Pumpcrete because it's the best way for economy and quality.

ECONOMY You pour invert with Pumpcrete because it's the best way.

ECONOMY You can spot it anywhere inside tunnel. In short, you can spot Pumpcrete in the most advantageous location.

ECONOMY You can spot it outside of tunnel entrance.

ECONOMY You use Pumpcrete because pipe line flexibility and longer placing range eliminate need for expensive hauling and rehandling equipment—reduce labor requirements.

PUMPCRETE MEANS QUALITY— ASSURES A BETTER STRUCTURE . . .

QUALITY 1—Pumpcrete does not segregate concrete.

QUALITY 2—Pumpcrete is the only method that places sidewall concrete in horizontal layers without chuting or dropping of concrete.

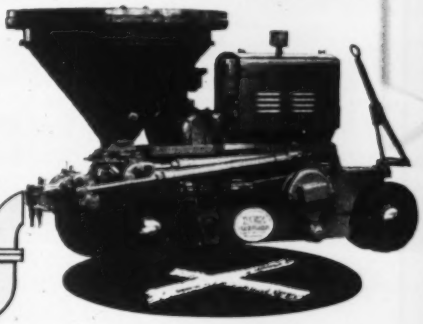
QUALITY 3—Pumpcrete will handle stiffer mixes.

QUALITY 4—Pumpcrete reduces loss of slump between pump and point of placement.

QUALITY 5—Pumpcrete will fill overbreaks higher—tighter than any other method—up to 20 feet.

QUALITY 6—Pumpcrete assures a continuous flow of concrete to the forms . . . thereby eliminating many cold joints and related imperfections.

QUALITY 7—Pumpcrete is the only method that assures a tightly lined tunnel without need for grouting.



Ask your Rex distributor for the complete Pumpcrete story

BEFORE YOU LINE YOUR TUNNEL, SAVE MONEY BY ASKING TO SEE THE CHAIN BELT COMPANY'S EXCLUSIVE NEW FILM ON UNDERGROUND CONCRETE PLACEMENT.

CHAIN BELT COMPANY, 1633 W. Bruce St., Milwaukee 4, Wis.

CHAIN BELT COMPANY REX

Bolting of structural joints cuts construction costs!

If you are interested in substantial savings in erecting your next building, follow the example of one of America's largest housing projects.

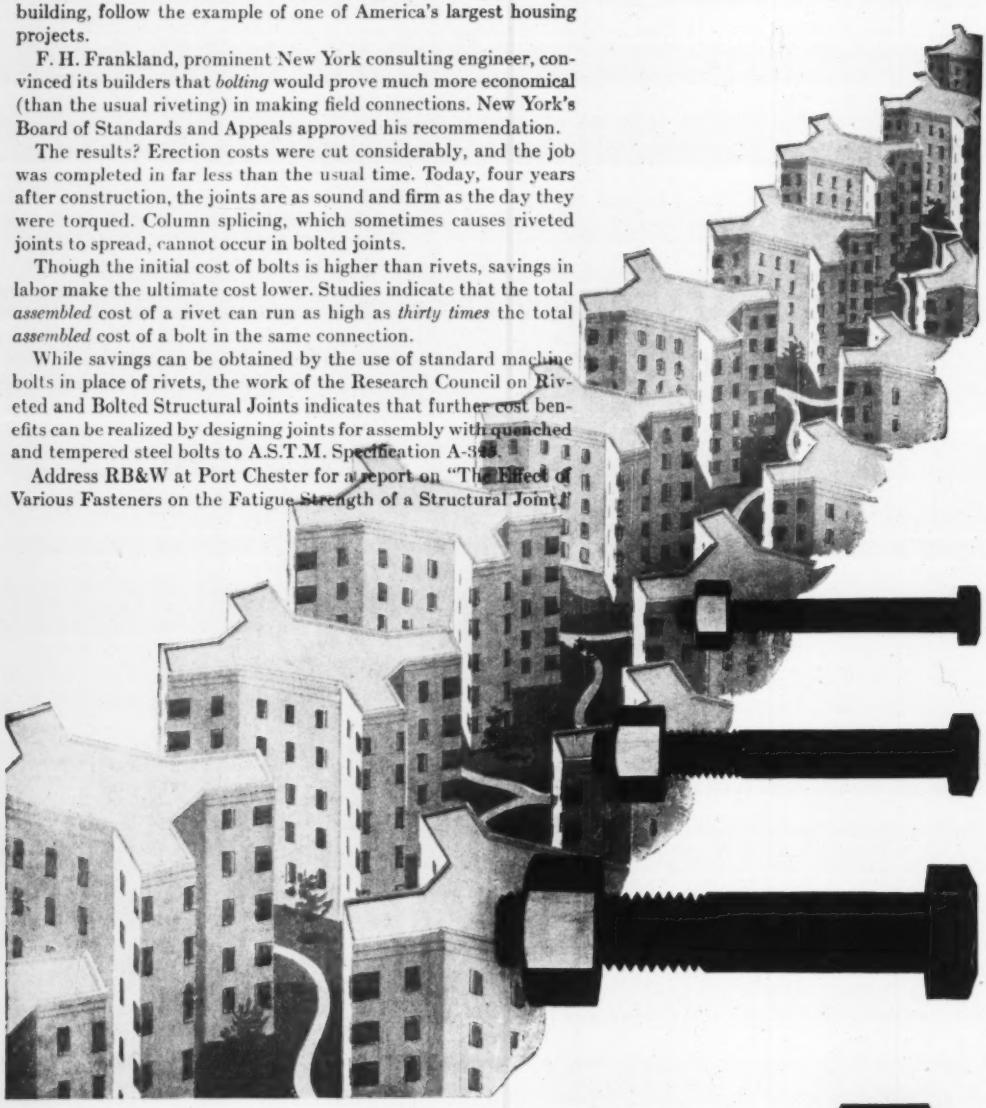
F. H. Frankland, prominent New York consulting engineer, convinced its builders that *bolting* would prove much more economical (than the usual riveting) in making field connections. New York's Board of Standards and Appeals approved his recommendation.

The results? Erection costs were cut considerably, and the job was completed in far less than the usual time. Today, four years after construction, the joints are as sound and firm as the day they were torqued. Column splicing, which sometimes causes riveted joints to spread, cannot occur in bolted joints.

Though the initial cost of bolts is higher than rivets, savings in labor make the ultimate cost lower. Studies indicate that the total *assembled* cost of a rivet can run as high as *thirty times* the total *assembled* cost of a bolt in the same connection.

While savings can be obtained by the use of standard machine bolts in place of rivets, the work of the Research Council on Riveted and Bolted Structural Joints indicates that further cost benefits can be realized by designing joints for assembly with quenched and tempered steel bolts to A.S.T.M. Specification A-325.

Address RB&W at Port Chester for a report on "The Effect of Various Fasteners on the Fatigue Strength of a Structural Joint."



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THE COMPLETE QUALITY LINE

Plants at: Port Chester, N. Y., Coraopolis, Pa., Rock Falls, Ill., Los Angeles, Calif. Additional sales offices at: Philadelphia, Detroit, Chicago, Dallas, Oakland. Sales agents at: Portland, Seattle.

106 YEARS MAKING STRONG THE THINGS THAT MAKE AMERICA STRONG

LABOR

Mark year of Harrisburg welfare plan

With a year's successful operation behind it—and $40,000 surplus in the bank and securities—the Building Trades Health and Welfare Fund of Harrisburg and Central Pennsylvania gave itself a congratulatory dinner recently.

Inaugurated Oct. 6, 1950, the plan covers some 1,250 construction workers employed by as many as 107 contractors (less than half of whom are members of the local building trades employers' group); has paid out eight death claims (of $500 each), and has paid over 100 claims for medical, surgical and hospital claims, ranging from $7.14 to $1,102.

It is supported entirely by a levy of three cents an hour on contractors, for each employee who is a member of one of the participating unions.

• **Long time coming**—The concept of the plan—one of the few area-wide programs in the United States—originated about two years ago among leaders of several unions now participating: Carpenters, laborers, cement finishers and plasterers, lathers and teamsters. These men took account of the hazardous nature of the work, felt some sort of insurance should be obtained.

Difficulties were obviously many: The workers moved constantly, insurance by individual employers might be prohibitively expensive.

But, at their suggestion, a 10-man committee, representing both the unions and contractors was formed. Committeemen spent more than a year investigating the problem.

• **Solution**—They came up with this answer:

Each contractor who is a member of the Building Construction Employers' Association should pay the three cents an hour to the fund for each worker in the affected trades.

Contractors not members of the association should pay three and one-half cents an hour into the fund who was a member of one of the participating unions. (Attorneys for the plan feel that this provision—making it possible for an outside contractor to participate while he has work in the area—removes any possibility of a charge of labor monopoly.)

• **Let's go**—The agreement as to payments became effective as of June, 1950, and payments began at the end of that month.

Three months later, when about $15,000 was already on hand, the insurance plan became effective on Oct. 6, 1950. Two insurance companies—American Casualty Co. of Reading, Pa., and Minnesota Mutual Life of St. Paul—had already agreed to underwrite the plan.

• **What for**—The plan provides, in detail, for:

Benefits of $500 in the event of death at any time for any cause; injury on the job—$26 the first week, $4 a week thereafter (plus workmen's compensation) up to 26 weeks; hospitalization—$6 a day up to a maximum of 31 days, plus $60 for miscellaneous medical expenses. These benefits were raised somewhat this year, after the annual meeting.

In the first year of the plan, accountants figured the monthly premium being paid in for employees was $3.66. This year the figure is somewhat higher—about $4.80.

Rochester tradesmen consider pension plan

A pension program to cut retirement age below 65 and provide other benefits is under consideration for 600 members of the Bricklayers, Plasterers, Tile & Marble Workers local at Rochester, N. Y.

James L. Burke, president of the AFL Central Trade & Labor Council, said the plan may be operating within a few months—depending now on actuarial studies of size of benefits to be paid.

A pension fund—built up by contributions of 15 cents per hour by the 600 union members since last May—now totals about $600,000, Mr. Burke said.

The pension plan stems from an agreement reached in 1950 between the union and the Contractors Arbitration Board, representing 24 members of the Mason Contractors Association. Thirty other contractors hiring union men are also bound by the agreement. The agreement called for a 25-cent hourly pay increase in 1950, and a 15-cent increase in 1951—the latter to be paid into the pension fund.

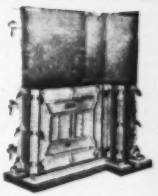
Construction industry needs more workers

The construction industry employed 2,791,000 workers in August and even at this high figure still needs more workers, W. F. Patterson, director of the Bureau of Apprenticeship of the U. S. Department of Labor, has declared.

Mr. Patterson urged contractors to expand the work force through appren-

(Continued on page 64)

Save manpower time and material



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Standard units of Economy Forms fit most jobs. But where needed, special forms can be built to specification.

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Ask for this credential when you buy concrete

The Bureau rating plate is available to all manufacturers who meet its quality standards and requirements.

However sympathetic you may be to the profit motive, you don't want *your* jobs served by truck mixers that are too small to properly mix a standard batch.

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Labor . . .

ticeship and other forms of industrial training to ensure an adequate number of craftsmen to meet the needs of the expanding defense program.

• **No let-down**—"Although the manufacturing industries are in the limelight today in connection with the defense production program, the construction industry is playing a major role," Mr. Patterson said. "Mobilization of workers is just underway—any let-down in training in the construction industry is unthinkable," he asserted.

Labor briefs . . .

• **Michigan U work halts**—When 40 carpenters quit in a dispute over installation of steel frame windows, work stopped on new buildings for the University of Michigan, at Ann Arbor. Picket lines were set up at the addition to Angell Hall, and the clinic building. Dispute centered around fact that contractors had put window frame installation in the hands of ironworkers.

• **Raises in Ohio**—AFL building laborers in Stark, Carroll and Wayne counties, Ohio, have been granted a 7-cent hourly wage increase, with WSB approval. The new rate is $1.77½ an hour. The 7-cent increase gives the workers a full 12½-cent hourly increase they sought when wage negotiations opened last spring: They got an initial 5 cent raise, the remaining amount being held pending WSB approval.

• **Bricklayers up**—Harrisburg, Pa., area bricklayers have agreed to accept a 12½-cent hourly wage increase, pending WSB approval, in lieu of the 25 cent hourly increase they have been asking. Existing hourly rate is $2.75.

• **Plasterers get boost**—In Chicago, plasterers have won WSB approval of a new rate of $2.90 an hour, effective Oct. 18. They were scheduled to get the rate as of June 1, but WSB rulings held the June raise to $2.80½, granted the remaining 9½ cents as of October.

• **End Belvoir strike**—Union craftsmen who halted work at Ft. Belvoir two weeks ago (ENR Oct. 18, p. 81) in protest against hiring of non-union workmen, returned last week. Union leaders said they had called off the walkout (involving more than 150 men and $4.4 million worth of work) at the request of DPA.

• **Louisville unions expand**—Around 1,000 men have joined unions affiliated with the Louisville Building & Construction Trades Council during the past month, according to council secretary Pat H. Reardon.

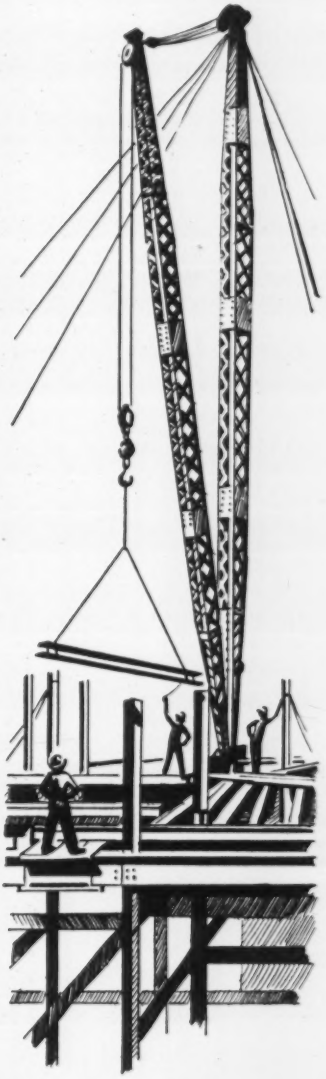
When **PRODUCTION**

hangs by a "Thread" . . . .

specify the wire rope that gives the greatest service. "HERCULES" (Red-Strand) *Preformed* spools more evenly —bends more smoothly. Handles more safely. Splices more easily. Far fewer replacements are needed.

Engineered to reduce internal tension and twisting, "HERCULES" (Red-Strand) *Preformed* stays *on* the job—*in* the groove.

For uninterrupted production, there is only one right rope . . . be sure to select the correct size and type.



LESCHEN WIRE ROPE

Feel free to consult our Engineering Department at any time for specific recommendations. **A. LESCHEN & SONS ROPE CO., 5909 Kennerly Ave., St. Louis, Missouri.** Warehouses and branch offices in all principal cities.

MATERIALS AND LABOR PRICES

Market quotations on construction materials and wage rates reported monthly by ENR correspondents
December Materials, and Labor Prices will appear in December 6, 1951 issue

CEMENT, AGGREGATE, READY-MIXED CONCRETE—F. O. B. CITY

	PORTLAND CEMENT* Per bbl. C/L lots cash, dis. not deducted			SAND AND GRAVEL Per ton, carload lots			CRUSHED STONE Per ton, carload lots		CRUSHED SLAG Per ton, carload lots, f.o.b. plant		CONCRETE BLOCK 8 x 8 x 16-in.; truckload del.; per block	CONCRETE Ready Mixed 1:2:4, over, 50 c.y., del.
	Paper	Bulk	Mortar	Gravel, 1½ in.	Gravel, ¾ in.	Sand	1½ in.	¾ in.	1½ in.	¾ in.	Sand grav. Lt. wgt. agg.	
Atlanta	$3.76	$3.45	3.25	$2.00	$2.00	$1.75	$2.10	$2.10	$1.65	$1.85	$0.191	$0.191	$11.50
Baltimore	3.71	3.40	3.35	2.50‡a	2.50‡a	2.00‡a	2.70‡a	2.80‡a	2.60‡a	2.55‡a	.17	.17a	10.80
Birmingham	3.11	2.68	2.82g	2.24n	2.24n	1.94n	2.50	2.50	1.10	1.30	.165	.165	7.85
Boston	4.01	3.69	3.58	2.50a	2.50a	2.50a	1.50a	1.60a	....	....	.206	.22a	11.50h
Chicago	3.29	2.99	3.94	3.00‡b	3.00‡b	3.40‡b	3.00‡b	3.00‡b	2.00‡	2.00‡	.22	.22b	11.50
Cincinnati	3.46	3.18	3.16	2.00‡c	2.00‡c	2.05‡c	2.35‡k	2.35‡k	....	....	.21	.225a	10.95f
Cleveland	N. A. in C. L.			2.05ef	1.85f	1.65	3.65a	3.65a	2.85‡	2.85‡	....	.23	13.00g
Dallas	2.95	2.65	2.70	2.18	2.28	1.84	2.22	2.38	....	....	.125e	.215	9.30
Denver	3.80	3.64	3.80	1.85	2.00	1.20	....	....	....	....	.22	.255a	10.19
Detroit	3.25f	2.98	3.04	4.00‡b	4.00‡b	3.50‡b	4.00‡	4.00‡	4.00‡	4.00‡	.19	.20a	10.55f
Kansas City	3.30	3.03	3.15	1.85‡	1.85‡	1.50a	2.00‡a	2.00‡a	....	....	.23ag	.23/.24c	10.95b
Los Angeles	4.00g	3.52a	4.72	1.95a	2.20a	1.95a	2.08a	2.08a	....	....	.11f	.22	10.00‡bm
Minneapolis	3.68cd	3.37cd	3.33	2.30‡ag	2.30‡ag	1.35‡ag	2.50‡ag	2.50‡ag	....	....	.23ik	....	11.75/k
Montreal	2.66ac	2.51ac	....	2.50	2.50	2.00i	1.55ij	1.80ij	....	....	.28	.20a	9.95ek
New Orleans	3.20e	2.90e	3.18	2.32	2.32	1.82	....	....	1.05	1.25	.25	....	12.90
New York	3.81	3.50	3.40	2.35bk	2.35bk	1.60bk	2.50bl	2.50bl	....	....	....	....	11.30an
Philadelphia	3.38/3.68‡	3.07/3.37‡	3.38‡	2.65‡	2.75‡	2.15‡	2.10‡	2.15‡	1.75	1.65	.22/.25	....	11.80
Pittsburgh	3.32	3.04	3.32	2.15‡	2.15‡	2.10‡	2.60‡	2.60‡	2.15	2.15	.23d	.23d	11.00
St. Louis	3.22	3.43b	2.84/3.10b	3.10/3.22	2.90am	2.70am	2.30/2.70am	1.70j	1.70j	1.25	1.25	.215	.27ex	10.40
San Francisco	3.35	2.95	....	1.88	1.88	1.98	1.98	....	....	....	....	.22ef	10.30e
Seattle	3.80a	3.25a	4.50h	3.00‡bm	3.00‡bm	3.00‡bm	3.50‡bm	3.50‡bm	....	....	.24j	.3325j	10.95j

‡Delivered. * Prices incl. dealers comm. except as noted.
CEMENT: *a* Subj. to 10¢ dis. *b* Less 2% for cash. *c* CL price dealers' comm. not incl. *d* Dealers sell only LCL. *e* Plus switching charges. *f* Paving up to $3.80 for cement brought in from outside sources. *g* Warehouse pickup. *h* LCL.
SAND, GRAVEL, STONE & SLAG: *a* Truck lots. *b* Per cu. yd. *c* 5 tons or more. *e* ¼". *f* Pea gravel. *g* Less 5% for cash. *h* Less than 5 tons. *i* Sales tax incl. *j* F.o.b. quarry. *k* Barge lots and. *l* F.o.b. scow Hudson river. *m* Less 2% for cash. *n* F.o.b. cars.
CONCRETE BLOCK: *a* Cinder. *b* Waylite. *c* Haydite. *d* Celocrete *e* 5 x 8 x 12 in. *f* 8 x 4 x 16. *g* F.o.b. truck at job. *i* Less 2% for cash. *j* Less 1% for cash. *k* 8x8x16. *l* F.o.b. plant San Rafael.
READY MIXED CONCRETE: *a* 5 cu. yds. or over del. Man. *b* 25 cu. yds. or more. *c* 10–100 cu. brackets. *e* 2,000 lb. conc. *f* 2500 lb. comp. *g* Aver. haul 7–9 mi. zone. *h* Less 50¢ for cash. *i* 5% off for cash. *j* 2% off for cash. *k* Sales tax included. *l* 1:2½:4. *m* F.o.b. yard. *n* Plus escalator clause.

CASH DISCOUNTS CEMENT to Contractors: Truck delivery, 2% for cash on 10th of month; on carload deliveries, no trucking, same as dealer cash discount 10c. per bbl. for payment within 15 days of date of invoice. Subject discount 10c. per bbl. 20 days in Montreal.

CURRENT MAXIMUM PRICES AT CEMENT MILLS

Charge for bags not included. For paper bags add 30¢ per bbl., not refundable

	Bulk		Bulk		Bulk		Bulk
Richard City, Tenn	$2.60†	Buffington, Ind	$2.55†	Steelton, Minn	$2.65†	Muskegon, Mich	$2.70†	Toledo, O	$2.60†
Clinchfield, Ga	2.60†	Independence, Kan	2.50†	Leeds, Ala	2.45†	Saginaw, Mich	2.60†	Milwaukee, Wis	2.75†
Kingsport, Tenn	2.60†	Hannibal, Mo	2.55†	Duluth, Minn	2.65†	Wyandotte, Mich	2.60†	Green Bay, Wis	2.75†
West Des Moines, Iowa	2.65†	Northampton, Pa	2.60†	Hudson, N. Y.	2.60†	Buffalo, N. Y.	2.60†	Ironton, O	2.60†
Nazareth, Pa	2.60†	Universal, Pa	2.65†	Alpena, Mich	2.50†	Oswego, N. Y.	2.75†	Montreal City	2.31
Bath, Pa	2.60†	Waco, Tex. (+ 10¢ tax)	2.50†	Detroit, Mich	2.60†	Cleveland, O	2.60†	W. Winfield, Pa	2.65†

†*Prices to hold for fourth quarter of* 1951.

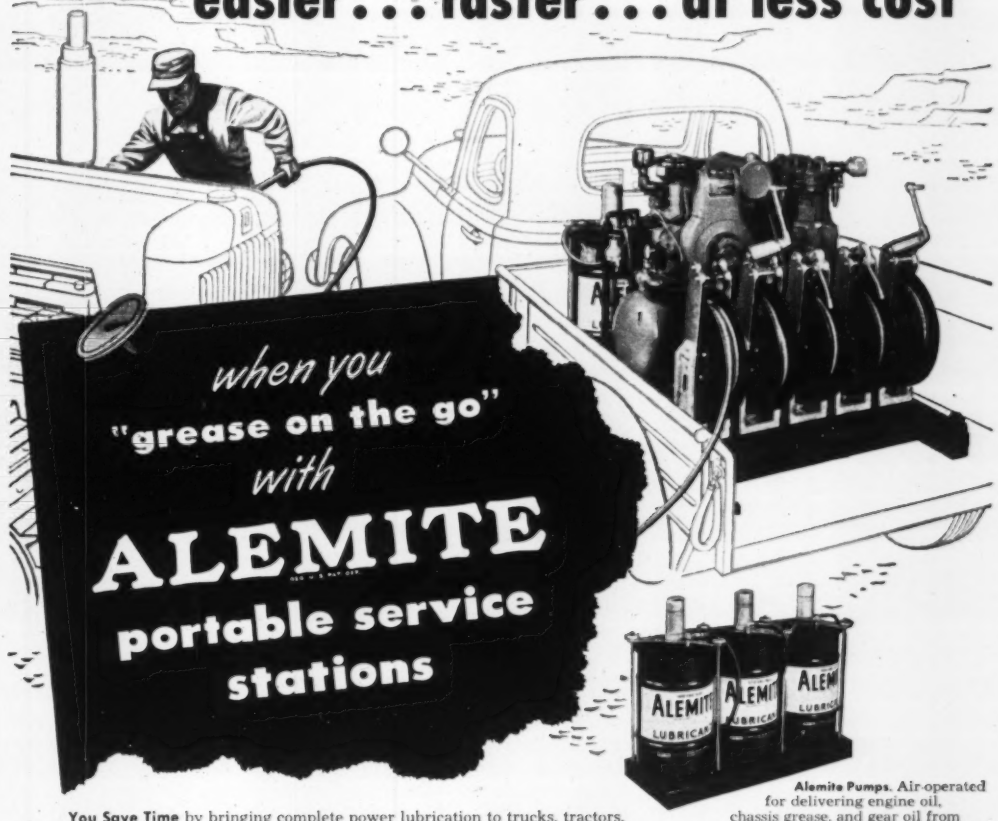
PAVING BRICK, BLOCK, ASPHALT, ROAD OILS—F. O. B. CITY

	PAVING BRICK AND BLOCK Granite Per M lots of 50,000 4x4x8 in.	Brick per M 3x4x8½ in. carload lots	Wood per sq. yd. 3½ in. 16-lb. treat	PAVING ASPHALT Per ton, less than 80 penetration Tank car	Drums	ASPHALT BINDERS—FLUXES Per gal., 80-300 penetration Tank car	Drums	CUTBACK ASPHALT Per ton Tank car	Drums	ROAD OIL Per gal. Tank car	ASPHALT EMULSION (Quick-breaking) Per gal. Tank car	Drums
Atlanta	$73.00	$35.00	$2.25	$26.00	$32.25	$0.1975	$0.339	$0.095	$0.185	$0.105	$0.115	$0.225
Baltimore	150.00‡	57.70‡	.....	22.00	.....	.0809	0.15	.09w	.17w	.09a	.09	0.12
Birmingham	.....	45.50i	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Boston	.....	.....	.....	24.50a	35.50a	22.00kx	35.50kx	.105a	.22a	.09a	.105a	.22a
Chicago	155.00‡	90.00‡b	4.40/4.60‡f	20.25b	30.25b	19.25bv	29.25bv	.0875bw	.16hw	.075b	.....	.....
Cincinnati	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Cleveland	200.00	55.90d	4.12g	23.00i	.....	23.00i	.....	.1025‡w	.194w	.114	.194	
Dallas	e	40.00	e	23.95	42.99	.1012	.1898	26.99	47.77	.0987	.1062	.1423
Denver	.....	48.00	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Detroit	.....	92.00	.....	26.45	.....	26.45v	.....	.117w	.....	.0925	.....	.2166
Kansas City	e	e	e	18.55cl	...	.....	0.19B	.0725w	.....	.0635c	.....	.....
Los Angeles	e	.....	e	15.50dmx	....	15.50dzx	.....	17.00dz	.....	16.00-tx	.0825j	.1825j
Minneapolis	.....	.....	2.83h	23.90	.....	22.90	.....	.0994w	.....	.0894	.1035	.....
Montreal	137.00	e	e	27.00n	36.65n	.135n	.183n	16.30nu	18.80nu	.132n	.187ns	.229ns
New Orleans	.....	.....	.....	17.50e	.....o	17.50ev	.....o	.085ew	.....o	.0882	.085	.....
New York	.....	.....	3.12f	26.26q	47.59q	25.26tt	46.58tt	.1071w	.1971w	.1071	.1072	.1993
Philadelphia	175.00	110.00	4.06	22.00	.....	.....	.....	.095w	.....	.....	.....	.....
Pittsburgh	165.00	48.00	4.60	23.00	37.00	.10	.20	27.00	39.00	.095	.09	.20
St. Louis	.....	.....	.....	19.25f	.....	.1698	.....	.0865	.089w	.15	.....	.....
San Francisco	.....	.....	.....	17.00y	32.50qp	17.00qkx	32.50qkv	19.00y	36.50y	17.50n	.085y	.....
Seattle	.....	.....	.....	17.00A	37.50A	16.25kx	.....	19.50A	.....	18.50kx	.095A	.105kr

‡ Delivered.
PAVING BRICK & BLOCK: *a* CL. *b* 3½ x 4 x 8½. *c* 2½ x 8½ x 4. *d* LCL, truck deliveries. *e* Not used. *f* 2" interior 6¢ treat. *g* 3". *h* 8¢ treat. *i* 3 x 3½ x 8½.
ASPHALTS: *a* Price at plant, Everett, Mass. *b* F.o.b. refinery, Lockport, Ill. *c* F.o.b. Sugar Creek, Mo. *d* F.o.b. refinery, El Segunda. *e* F.o.b. Baton Rouge. *f* F.o.b. Wood River or Roxana, Ill. *g* F.o.b. Richmond, Calif. *k* F.o.b. Martinez. *r* Bulk refinery. *v* F.o.b. refinery, Inglewood-Calif. *k* 50-110 penetr. *l* Less than 100 penetr. *m* 40-80 penetr. *n* Tax incl. *o* Drums not avail. *p* Shipped in steel bbl. *q* 40-85 penetr. *r* In customer's drums. *s* Shipped in drums, per drum. *t* 85-300 penetr. *u* Per 100 gal. *w* Per ton. *x* Per gal. *z* Also tank trucks. *y* F.o.b. Oakland. *A* F.o.b. refinery Cleveland. *B* 55 gal drums.

You'll haul MORE pay loads

easier . . . faster . . . at less cost



when you
"grease on the go"
with

ALEMITE

portable service stations

Alemite Pumps. Air-operated for delivering engine oil, chassis grease, and gear oil from original drums. Available for individual or "group" installation.

Alemite Hose Reels. For high and low-pressure delivery of chassis grease, gear oil, engine oil, and air. Available in single or multiple units to suit any requirement.

You Save Time by bringing complete power lubrication to trucks, tractors, equipment right on the job! Air-operated pumps deliver grease "refinery clean" direct-from-barrel-to-bearing.

You Save Money by cutting the costly "downtime" required for lubrication, thereby increasing the output of *both* your men and equipment.

You Save Equipment by keeping your earthmoving rigs running smoother, longer—no matter how far afield they may be! And, you reduce greatly the possibility of bearing failures.

To suit your needs exactly . . .
Alemite Portable Service Stations are S-E-C-T-I-O-N-A-L-I-Z-E-D

Yes, whatever selection of chassis or gear oil pumps and reels you require for 100 lb. drums, you can easily combine them into a tailor-made Alemite Portable Service Station—*exactly keyed to your needs!*

Other Alemite heavy duty pumps, reels and accessories are also available for 400 lb. and 54 gal. capacity drums.

Send today for FREE illustrated catalog describing this equipment. Write to Alemite, Dept. G-111, 1850 Diversey Parkway, Chicago 14, Illinois.

ALEMITE

Another Product of
STEWART WARNER

IRON AND STEEL PRODUCTS—PER 100 LBS. BASE MILL PRICES

	STRUCT SHAPES—	PLATE CARBON STEEL	REINF BARS billet	RIVETS ½-in. structural	SHEET PILING	STEEL RAILS Per Net Ton Standard	Light	Re-rolled	TRACK SUPPLIES Angle Bars	Std Spikes	Tie Plates	Track Bolts
Birmingham Area	$3.65	$3.70	$3.70	$7.85	....	$72.00	$80.00	Not	$4.70	$6.15	$4.50	....
Chicago Area	3.65	3.70	3.70	7.85	$4.45	72.00	80.00	avail-	4.70	6.15	4.50	....
Pittsburgh Area	3.65	3.70	3.70	7.85	4.45	72.00	80.00	able	4.70	6.15	4.50	$9.85
Buffalo Area	3.70	3.70	3.70	7.75	4.45	72.00	80.00	....	4.70	6.15	4.50	9.85
Cleveland	....	....	3.70	7.85	....	....	....	....	....	....	....	9.85
Youngstown Area	....	....	3.70	....	....	....	....	....	....	6.15	....	....
Geneva	3.65	3.70	....	....	....	....	....	....	....	....	....	....
Los Angeles	....	....	4.40	....	....	....	....	....	....	6.15	....	....
Pueblo	3.65	3.70	3.70	....	....	72.00	80.00	....	4.70	6.15	4.50	9.85

IRON AND STEEL PRODUCTS—F. O. B. WAREHOUSE, PER 100 LBS., BASE PRICE

	STRUCTURAL SHAPES Per 100 lb. base price	REINFORCING BARS Per 100 lb., base price u 5 tons to carload lot b New billet	Rail steel	Add switch	$/cwt for Del.	EXPANDED METAL LATH k Per 100 sq. yd., carload lots Std. diamond mesh, 3.4 lb.	Std. ribbed 3.4 lb.	WELDED FABRIC REINFORCING d Per 100 sq. ft., carload lots 4x16 in., No. 5 & 10 wires	4x12 in., No. 8 & 12 wires	6x6 in., No. 6 & 6 wires
Atlanta	$6.80	$6.65	$6.65	$.025	$.10	$31.50	$31.50			
Baltimore	6.54	5.49l	....	....	.10	42.00	45.00			
Birmingham	5.70	5.75	5.75	.05	.15	47.00p	52.00p			
Boston	6.20ak	6.19ck	6.19ck	....	.15	40.50	44.50			
Chicago	5.70	4.95ff	4.95ff	.0625	....	34.50‡	38.50‡			
Cincinnati	6.24ak	5.84r	....	....	....	38.50azee	41.50azee			
Cleveland	5.82	4.81v	....	....	.10	37.00‡	40.00‡			
Dallas	8.85	7.00	7.00	....	....	49.00	52.00			
Denver	7.20	7.10e	....	....	....	60.00s	72.00qs			
Detroit	6.09	5.74n	....	....	.20	53.00	58.00			
Kansas City	6.30nn	5.90ff	....	....	....	39.50	41.50			
Los Angeles	6.45fAA	6.15g	....	....	.15	48.00	54.00kk			
Minneapolis	6.16kk	7.12ll	7.12ll	....	.30	37.00	40.00			
Montreal	6.55xB/6.75A	4.75i	4.75g	....	....	57.00k	59.00k			
New Orleans	....	5.55ok	....	.05	.10	40.00	40.00			
New York	6.30r	6.25	6.25	....	.30	38.50st	45.00st			
Philadelphia	5.90	5.95	....	....	....	38.00‡	42.00‡			
Pittsburgh	5.40/5.60	5.40/5.60	....	....	.10	34.00	36.00			
St. Louis	6.03a	5.34c	5.34c	....	....	47.00aa	53.00aa			
San Francisco	7.15ii	6.50	....	....	.15	40.50	43.50			
Seattle	4.30e	5.55ol	....	....	....	57.00mmm	47.00mmmz			

A.P.M.* Joliet, Illinois, Donora, Penn., $2.66
F.o.b. Mill: Monessen, Penn., $2.76

A.P.M.* Joliet, Illinois, Donora, Penn. $1.87
F.o.b. Mill: Monessen, Penn., $1.93

A.P.M.* Joliet, Illinois, Donora, Penn., $2.79
F.o.b. Mill: Monessen, Penn., $2.80

‡ Delivered. b 1–5 tons, add 35¢. Less than 1 ton, add 50¢. c 20 tons or over base. d Mill price plus freight. e F.o.b. plant. f Includes delivery in free delivery zone. g 10,000 to 39,999 lbs. h List price. i Dominion tax exempt. Provincial and Municipal tax extra. j Plus Dominion, Provincial and Municipal sales tax. k F.o.b. city. l Intermediate and hard grade, new billet. m Per sq.yd. n 5–10 tons. o 5 to 20 tons base. p Del. of 500 sq. yd. or more. q Std. ribbed, 4 lb. per sq. yd. r 5 tons or over. s LCL. t Asphalt coated. u Note: Revised size extra — 1 in., 1¼ in., 1½ in., 10¢, ¾ in., ¼ in., 15¢, ⅞ in., 25¢, ½ in., 50¢, ¾ in. 80¢, ⅛ in. $1.90. v 20 tons. Straight. w Copper bearing. x 2.5 lb. per sq. yd. y $0.0093 transportation tax included. z Copper alloy. aa Delivered truck to job. Contractor to do unloading. dd F.o.b. dock. ee F.o.b. cars. ff Carload lots. gg Including sales. hh 10,000-19,999 lbs. ii Rolled at Geneva mill. 400–999 lbs. kk 1" ribbed. ll 5 to 8 tons, f.o.b. city. mm 2% off for cash. nn 1–5 tons. ¢ 10 tons to CL. a 2000–9999 lbs. A. Amer. struct'l shapes. B. Canadian shapes.

* At Producing Mill.

PLUMBING, HEATING, WATER, SEWER AND DRAIN PIPE

	C. I. PIPE Per net ton f.o.b. 6 in. to 24 in.a	VITRIFIED SEWER PIPE Per foot, Delivered std. 8 in. a.s.	ASTM C13-44T std. 12 in. a.s.	24 in. a.s.	36 in. ds.	CLAY DRAIN TILE ASTM C4-24 Per 1,000 ft., carload lots, f.o.b. o in.	8 in.	CONCRETE SEWER PIPE Per ft., delivered: ASTMC 14-41 12 in.	24 in.
Atlanta	$99.00	$0.43	$0.67	$3.39qq	$7.00qq	$114.00	$140.00	$0.45	$2.00
Baltimore	109.00	.539	1.0395	4.234	11.275A	178.20	274.80	.90	2.45
Birmingham	93.00	.42	.75	2.99	....	210.00‡	375.00‡	1.25m	2.75m
Boston	113.00	.532uvz	1.08uvy	4.41uvy	11.685uvy	187.80z	289.20z	1.55mq	3.80mq
Chicago	107.00	.65	1.25	5.10	13.50	150.00‡	270.00‡	.80	2.80
Cincinnati	106.00	.574	1.107	4.32	11.38	154.80	239.70	.75m	2.80m
Cleveland	108.00	.462x	.89x	3.69x	10.045x	158.00m	245.65m	.80m	3.00m
Dallas	107.00	.436	.822	3.234b	9.17b	.....	.....	.49	1.60
Denver	115.00	.43dd	.74dd	3.18dd	....	.....	.....	.74m	2.50m
Detroit	108.00	.70	1.35	5.35	14.40	240.00m	360.00m	.80	3.20
Kansas City	106.00	.50	.88	3.50	....	216.70	.....	.70	3.00g
Los Angeles	122.00	.54f	1.07f	5.24f	13.06f	228.20f	348.90f	.85	2.40ff
Minneapolis*	112.00	.66mo	1.20mo	4.85mo	....	.....	.....	1.36k	3.87k
Montreal	100.00	.83z	1.50z	5.25z	....	.....	.....	106.50/kaa	282.70/kaa
New Orleans	101.50	.498	.905	5.03	....	229.70bb	402.00bb	.65	2.29
New York	111.00	.62	1.19	4.73	12.40	.....	.....	1.15	2.50
Philadelphia	110.00	.65	1.25	4.95A	12.65A	300.00‡	350.00‡	1.55A	3.75A
Pittsburgh	109.00	.386m	.752m	2.83m	7.622m	147.50	230.00	1.05A	2.50A
St. Louis	103.00	.51	.93	3.65	8.50	170.00	400.00	1.20il	2.85Al
San Francisco	122.00	.61d	1.20d	5.03d	12.57d	240.00dl	400.00dl	.95	3.20
Seattle	124.00	‡ .51b	.91b	....	....	150.00c	.....	.88ee	2.65ee

*WROUGHT STEEL PIPE

(Full standard weight)

Mill	2½ & 3 in. Butt Weld Black %	Galv. %	3½ to 6 in. Lap Weld Black %	Galv. %	2½ & 3 in. Butt Weld Black %	Galv. %	3½ to 4 in. Lap Weld Black %	Galv. %
Lorain, Ohio	43.5	15.5a	43.5	18.0e	22.0	24.0	22.0	24.0
Aliquippa, Pa.	43.5	13.5a	43.5	15.5a	22.0	24.0	22.0	24.0
Sparrows Pt., Md.	41.5	13.5a	43.5	15.5a	22.0	24.0b	22.0	24.0b
Benwood, W. Va.	.....	.....	43.5	18.0e	.....	.....	43.5	24.0
Youngstown, O.	.....	.....	43.5	15.5a	.....	.....	43.5	24.0
Indiana Harbor, Ind.	.....	.....	42.5	15.5a	.....	.....	42.5	23.0
Sharon, Pa.	.....	.....	43.5	17.5a	.....	.....	43.5	22.0
Wheatland, Pa.	.....	.....	43.5	18.0b	.....	.....	43.5	22.5
Etna, Pa.	.....	.....	43.5b	24.0b	.....	.....	43.5b	24.0b
Fontana, Calif.	.....	.....	32.0b	18.5b	.....	.....	32.0b	18.5b
Torrance, Calif.	.....	.....	.....	24.0b	.....	.....	.....	24.0b

‡ Delivered. a Class B & heavier. Based on existing freight rates; subject to rate change. Gas pipe and class A, $5 per ton additional. 4 in., $7 per ton additional. 30 in. and larger, usually, $1 per ton less. b Extra strength ASTM C-200-44T. c 4-in., $90. d SS361-A. e 30-in. f F.o.b. factory. g Culvert pipe. Reinforced, ASTM C76–41. h Reinforced, ASTM C75–41. i Reinforced, ASTM C76–37. j Centrispun. k Per 100 ft. l F.o.b. plant. m Truck delivery. o Listed price is based on LCL (no minimum). p Less than 5 tons, per price per ft. t Within switching limits. u ASTM C13–40. x C.L. f.o.b. origin, freight allowed. x 2 ft. lengths. y 3 ft. lengths. z CESA A 60–1941 specifications used. aa No. standard specifications in Can. bb Freight allowed to destination in city. cc Truck loads; f.o.b. plant, Newton. dd LCL, delivered, f.o.b. truck. ee 1% off for cash. ff 21 . gg Extra strength ASTM C-200-50. A Standard strength. *6" to 8", 1.60 per ft.; 10 to 12", 2.40 per ft.; 14", 3.20 per ft.; 16", 4.00 per ft.; 18", 4.80 per ft.; 20", 5.60 per ft.; 24", 7.20 per ft.; 30", 9.00 per ft.; 36", 10.80 per ft.; 42", 12.60 per ft.; 48", 14.40 per ft.; 54", 16.20 per ft.; 60", 18.00 per ft.; 66", 19.80 per ft.; 72", 21.60 per ft.; 78", 23.40 per ft.; 84", 25.20 per ft.; 90", 27.00 per ft.; 96", 28.80 per ft.; 102", 30.60 per ft.; 108", 32.40 per ft.; 114", 34.20 per ft.; 120", 36.00 per ft.; 126", 37.80 per ft.; 132", 39.60 per ft.; 138", 41.40 per ft.; 144", 43.20 per ft.

* WROUGHT STEEL PIPE: Discounts from standard list consumers carload prices. Base price approx. $200 per net ton. List prices per ft.: *Butt Weld:* ¼ in., 5¼¢; ⅜ in., 6¢; ½ in., 8½¢; ¾ in., 11½¢; 1 in., 17¢; 1¼ in., 23¢; 1½ in., 27½¢; 2 in., 37¢; 2½ in., 58½¢; 3 in., 76½¢. *Lap Weld:* 3½ in., 92¢; 4 in., $1.09; 5 in., $1.48; 6 in., $1.92. Freight rates to destination to be added to price plus 3 percent tax on transportation.

WROUGHT IRON PIPE: List prices per ft. same as wrought steelpipe. Discount for Pittsburgh base. *Butt Weld* — 1 in. and 1¼ in. black, + 20.0, galv. + 48.0; 1½ in. black, + 14.0 galv. + 44.5; 2 in. black, 4 galv. + 34.5. *Lap Weld* — 2½ in. to 3½ in. black + 20.5, galv. + 47.5; 4½ in. to 8 in. black + 17.5, galv. + 43.0. Freight rates to destination to be added to name delivered price.

† Threaded and coupled. a 3½ to 4 in. weld. c 5 and 6 in. Continuous

GOW SOIL BORINGS

BY Raymond

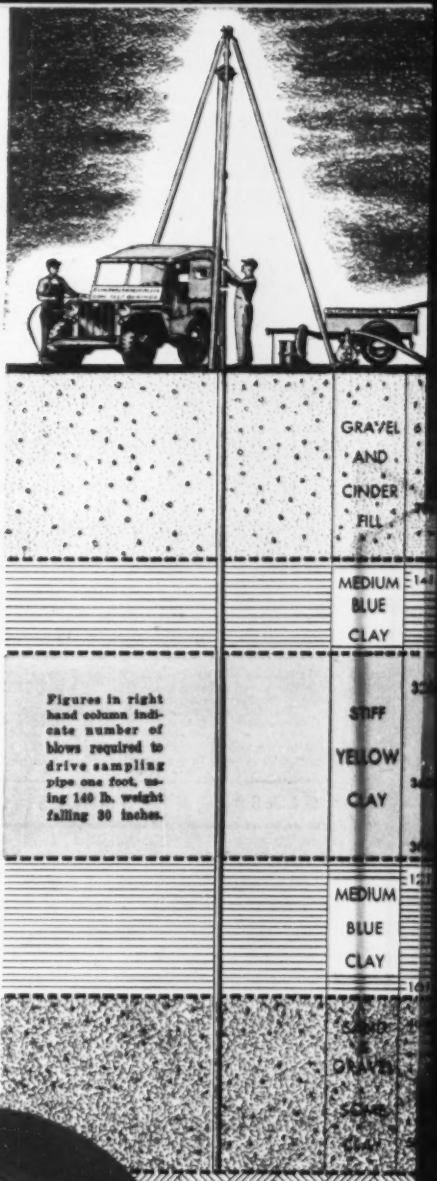
Carefully made soil investigations are of great value to Owners, Architects and Engineers in the selection of building sites and the determination of proper structural foundations.

Specify dependable Gow borings by Raymond and you will secure information that will supply the basis for sound engineering decisions.

Their low cost will surprise you.

• • •

THE SCOPE OF RAYMOND'S ACTIVITIES includes, in addition to borings for soil investigation, every recognized type of foundation construction—concrete, composite, precast, steel, pipe and wood piles. Also caissons, underpinning, construction involving shore protection, shipbuilding facilities, harbor and river improvements, and cement mortar lining of oil and water pipe lines 4" to 144" in diameter by the Centriline Corporation, a Raymond subsidiary.


GRAVEL AND CINDER FILL
MEDIUM BLUE CLAY
Figures in right hand column indicate number of blows required to drive sampling pipe one foot, using 140 lb. weight falling 30 inches.
STIFF YELLOW CLAY
MEDIUM BLUE CLAY
REFUSAL – LEDGE ROCK OR BOULDER

GOW DIVISION

Raymond

CONCRETE PILE CO.

140 Cedar Street, New York 6, N. Y.

BRANCH OFFICES:

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LUMBER, TIMBER, PLYWOOD—PER M FT., B.M., CARLOAD LOTS F. O. B.

SHORT LEAF YELLOW PINE AND DOUGLAS FIR

All S. L. Y. P. is No. 2 common or better and for No. 1 N. C. Box. (Prices in Bold Face)

All Fir boards, dimensions, planks No. 2. Fir small timbers and timbers are No. 1. Lengths up to 20 ft.

(Prices in italics)

	1x6 s4s	1x8 s4s	2x4 s4s	2x6 s4s	2x8 s4s	2x10 s4s	3x12 R/A	6x12 R/A	12x12 R/A
Atlanta	† **$73.90**	**$76.00**	**$67.00**	**$69.00**	**$73.00**	**$76.00**	**$75.00**		
Baltimore	* **92.50**	**103.00**	**85.00**	**85.00**	**85.00**	**95.00**	**110.00**		
	104.50g	*104.50g*	*107.50g*	*107.50g*	*107.50g*	*106.50g*	*114.50*	*$110.00*	*$110.00*
Birmingham	† **83.00**	**83.00**	**70.00**	**80.00**	**83.00**	**85.00**	**95.00**		
	85.00	*85.00*	*75.00*	*80.00*	*80.00*	*79.00*	*85.00*	*85.00*	*85.00*
Boston	**96.00***a*	**100.00***a*	**97.00***a*	**98.00***a*	**103.106***a*	**110.00***a*			
	2 *92.50*	*92.50*	*105.110*	*110.00*	*108.112*	*108.112*	*126.00*	*126.00*	*126.00*
Chicago	** **96.00**	**100.00**	**92.00**	**96.00**	**96.00**	**100.00**	**105.00**		
	103.00	*105.00*	*100.00*	*106.00*	*106.00*	*106.00*	*110.00*	*110.00*	*110.00*
Cincinnati	* **96.00**	**98.00**	**84.00**	**92.00**	**96.00**	**98.00**	**118.00**		
	112.00	*112.00*	*114.00*	*114.00*	*114.00*	*114.00*	*130.00*	*125.00*	*125.00*
Cleveland	**100.00**	**102.00**	**81.75***h*	**99.00**	**99.00**	**104.00**			
			100.00	*100.00*	*100.00*	*110.00*	*130.00*	*130.00*	*130.00*
Dallas	† **78.00**	**80.00**	**69.00**	**58.00**	**59.00**	**59.00**	**98.00**		
Denver	* *Not in stock*		*127.00*	*127.00*	*128.00*	*155.00*	*137.00*	*156.00*	*156.00*
Detroit	‡ **106.00**	**110.00**	**100.00**	**110.00**	**112.00**	**113.00**			
	99.75	*100.75*	*105.75*	*106.50*	*105.50*	*104.00*	*120.00*	*120.00*	*120.00*
Kansas City	* **120.00**	**120.00**	**120.00**	**120.00**	**120.00**	**120.00**			
	120.00	*120.00*	*120.00*	*120.00*	*120.00*	*120.00*	*145.00*	*155.00*	*155.00*
Los Angeles	1 *100.00*	*100.00*	*98.50*	*98.00*	*98.00*	*98.00*	*115.00*	*125.00*	*115.00*
Minneapolis	*h 130.00*	*130.00*	*135.00*	*135.00*	*135.00*	*135.00*	*150.00*	*150.00*	*150.00*
Montreal	*ab* **98.00**	*110.00*	*95.00*	*100.00*	*110.00*	*125.00*			
	175.00	*175.00*	*175.00*	*175.00*	*175.00*	*175.00*	*175.00*	*175.00*	*170.00*
New Orleans	† **100.00**	**100.00**	**92.00**	**85.00**	**90.00**	**94.00**	**118.00**		
	† *100.00*	*102.00*	*102.50*	*103.00*	*102.00*	*99.50*	*118.00*	*117.00*	*112.00*
New York	‡ **105/110**	**110/115**	**100/105**	**107**[30] **112**[32]	**112**[30] **117**[32]	**117**[30] **122**[32]	**150/160**		
			Range from $120.00 to $125.00				*155/150*	*145/165*	*145/165*
New York	** **96.00**	**102.00**	**81.00**	**94.00**	**97.00**	**99.00**	**120.00**		
	100.00	*100.00*	*108.00*	*108.00*	*108.00*	*108.00*	*115.00*	*130.00*	*130.00*
Philadelphia			**Range from $117.00 to $127.00**				**117/127**		
			Range from $130.00 to $140.00				*130/140*	*140/150*	*140/150*
Pittsburgh	†		**Range from $90.00 to $95.00**			**100/110**	**100/110**		
			Range from $100.00 to $110.00			*100/110*	*110/115*	*145/155*	*145/155*
St. Louis	*fc* **112.00***e*	**117.50***e*	**93.50**	**107.50***d*	**112.25***d*	**125.00***d*			
			115.50e	*120.00e*	*120.00e*	*120.50e*	*155.00e*	*160.00*	*160.00*
San Francisco	*A* † *65.00*	*65.00*	*77/78*	*74.00*	*74.00*	*72.00*	*72.00*	*80.00*	*80.00*
Seattle	† *82.50g*	*82.50g*	*82.50g*	*82.50g*	*82.50g*	*82.50g*	*82.50g*	*82.50g*	*82.50g*

	LONG LEAF Y. P. Merchantable grade up to 20 ft.		PLYWOOD Rail freight increment (See note for base price)	
	2x12 R/A	12x12 R/A	3/8"	1/2"
Atlanta			$22.32	$27.24
Baltimore	$145.00	$145.00	22.86	27.90
Birmingham	115.00	130.00	21.78	26.58
Boston			22.86	27.90
Chicago	134.00	134.00	18.72	22.80
Cincinnati	125.00	125.00	21.78	26.58
Cleveland			22.20	27.12*j*
Dallas	108.00	98.00	18.72	22.80
Denver			13.92	16.98
Detroit			21.78	26.58
Kansas City			16.56	20.16
Los Angeles			13.38*ab*	16.26*ab*
Minneapolis			16.56	20.16
Montreal				
New Orleans	148.00	140.00	18.72	22.80
New York	210/240	210/240	22.86	27.90
New York				
Philadelphia	190/200	190/200	22.86	27.90
Pittsburgh	100/110	115/125	22.56	27.48
St. Louis			18.72	22.80
San Francisco			10.08*a*	12.30*a*
Seattle				

† F.o.b. mill. * F.o.b. city, CL, out of yard. ** F.o.b. city, CL, direct mill shipment. ‡ Deliv. to contr. CL. 1. Retail, LCL, at yard. # Retail, LCL, deliv. 2. Deliv. truck lots. 3. asd.

LUMBER: **Bold Face type, Southern Pine.** *Italics, Douglas Fir.* *a* Spruce & Tax exempt. *c* 5M lots. *d* 8-12 ft. lengths. *e* 8-16 ft. lengths. *f* 18 ft. or under. *g* No. 1 common. *h* 8 ft. lengths. *k* No. 3 common *l* 8-10 ft. lengths. Correction: *A* Oct. $78.50.

A Rail freight rate from Northwest mills to San Francisco are $11.50 to $15.00 per M ft bm. From Northern Calif. mills $9.00 by rail $12.00 by truck to yard with surfaced stock $2.00 to $3.00 less.

PLYWOOD: Special concrete form grade Fir Plywood, 4' by 8' panels, 5-ply, sanded 2 sides, water resistant glue, carload lots, delivered per 1,000 sq. ft. surface. Seattle base price on 1/2", $204.00; on 1", $231.00. For other centers add rail freight increment from table on proper size. Oiling and edge sealing charges included. *a* Lower rate by water shipment. *b* 50,000 lb. minimum.

* Freight rate increase of 6¢ per cwt., not included in these figures.

GLASS, EXPLOSIVES, CHEMICALS

WINDOW GLASS

Discounts from jobbers list, Feb. 1, 1950*a*

Single or Double Thickness

	A quality	B quality
Atlanta	79%	80%
Baltimore	70–10%	78–10%
Birmingham	83%	83%
Boston	79–10%	79–10%
Chicago	78%*f*	78%*f*
Cincinnati	78%	78%
Cleveland	78–10–10%*f*	78–10–10*f*
Dallas	75%	75%
Denver	81–5%	81–5%
Detroit	78–10–10%	78–10–10%
Kansas City	80–10%	80–10%
Los Angeles	75%	80%
Minneapolis	78–10%	78–10%
Montreal	45–15%*bc*	45–15%*bc*
New Orleans	78%	77%
New York	82%*f*	82%*f*
Philadelphia	76%*f*	78%*f*
Pittsburgh	82%	82%
St. Louis	80–10%	80–10%
San Francisco	70%*f*	70%*f*
Seattle	75%*f*	78%*f*

EXPLOSIVES

Per lb. 40% Ammonia Gelatin in 50 lb. cases delivered in 200 lb. lots*

Atlanta	$0.2275
Baltimore	.2275
Birmingham	.1750
Boston	.2275
Chicago	.2275
Cincinnati	.2275
Cleveland	.2675
Dallas	.2350
Denver	.2325
Detroit	.2275
Kansas City	.2325
Los Angeles	.23
Minneapolis	.2325
Montreal	20.00*hi*
New Orleans	.2325
New York	.38*g*
Philadelphia	.2275
Pittsburgh	.20
St. Louis	.2325
San Francisco	.2275
Seattle	.23

Price of 60% Ammonia Gelatin is $0.0125 per lb. higher than 40%

a Glass; *a* Jobbers' list price per box, 14 x 20, ss, $42.75 for A quality, $37.50 for B quality; 14 x 20, ds, $60.00 for A quality, $52.75 for B quality. *b* Discount from list, Apr. 1951; sales tax included, but 6% tax exemption not allowable for. *c* Single thickness. *f* Disc from Oct. 1950.

* *Explosives;* * Urban prices influenced by service charges or local storage and delivery regulations do not consistently reflect quantity prices in less congested areas. *g* In borough of Kings, Queens, and Richmond and in Manhattan south of Canal St., add delivery charge of $9.00 per trip. *h* F.o.b. city per 100 lb. forcite, 40%. Forcite 60%, $21.75. *i* F.o.b. Beloeil (near Montreal).

40% Ammonia Gelatin price ranges in other than urban areas, per lb. (except Seismograph Grades)

C/L 20,000

	lb. net	Tons	200 lb. lots
E. of the Miss., except Fla. and Me.	$0.175	$0.2075	$0.2275
W. of Miss. to Rocky Mtn. States, Fla. and Maine	.18 – 1875	.2125– 22	.2325– 24
Rocky Mtn. States	.18 – 1925	.2125– 22	.2325– 245
Pacific N. W. States	.1775– 19	21 – 2225	23 – 2425
Pacific S. W. States	.175 – .1825	.2075– 21	.2275– 2325

PILES, TIES F. O. B.

PILES

Prices per linear foot, fir and pine, bark off, f.o.b. cars, New York. Fir based on Wash. and Ore. points to New York shipping area; pine based on freight from Norfolk.

Dimensions	Points	Length	By Rail * Pine*	By Rail ‡ Fir‡
12-in. at butt	6-in.	30 to 50-ft.	$0.43	....
12-in.— 2-ft. from butt	6-in.	50 to 59-ft.	.46	....
12-in.— 2-ft. from butt	6-in.	60 to 69-ft.	.50	..
12-in.— 2-ft. from butt	6-in.	90 to 100-ft.	....	....
13-in.— 3-ft. from butt	5-in.	91 to 100-ft.	....	....
14-in.— 2-ft. from butt	5-in.	50 to 69-ft.	.50/.60	....
14-in.— 2-ft. from butt	6-in.	70 to 79-ft.	.70/.75	.85
14-in.— 2-ft. from butt	5-in.	80 to 85-ft.	.75/.85	.86
14-in.— 2-ft. from butt	5-in.	85 to 89-ft.	....	.92
14-in.— 2-ft. from butt	5-in.	90 to 100-ft.	....	.94

* Pine piling over 80-ft. available only in limited quantities.

RAILWAY TIES

Prices f.o.b. per tie for carload lots:		6"x8'x8' Untr.	6"x8'x8' Tr.	7"x9"x8'6" Untr.	7"x9"x8'6" Tr.
Boston	Oak	....	....	....	....
	Pine	....	....	....	....
New York	S. L. Sap Pine	$2.10	$3.90	$3.00	$5.00
	Mixed Oak	2.65	4.20	3.25	5.50
Birmingham	Hardwood	2.00	3.13*a*	2.68	4.16*a*
Chicago	Red Oak	....	4.00*a*	....	5.00*a*
Los Angeles	Douglas Fir	....	....	....	....
	Redwood	....	....	....	....
Philadelphia	Red Oak	2.15/2.33	3.10/3.13*a*	3.00/3.10	4.15/4.25*a*
St. Louis	White Oak	2.90		3.00	
	Red Oak	2.80	3.45*a*	3.48	4.45*a*
	Sap Pine or Cypress	3.28*a*		4.20	
San Francisco	Douglas Fir	2.31*e*	3.35*ef*	3.03*bf*	4.40*eq*
Montreal	Birch or Maple	.... *h*	.... *h*	.... *h*	.... *h*

Tr.— Treated; Untr.— Untreated. *a* Creosoted. *b* 7" x 9" x 8'. *c* Empty cell. *e* Green. *f* F.o.b. cars. *h* No constant price available. *i* Not available.

CHEMICALS

Water, sewage treatment, road work, f.o.b. carlots, New York

Bleaching powder in drums f.o.b. works, per 100 lb.	$6.00
Chlorine cylinders, liquid, per lb. f.o.b. works	.0875
Calcium chloride, 77-80%, flaked, 100-lb. paper bag, f.o.b. works, ton	25.00
Silicate of soda, 52 deg., in drums, f.o.b. works, per 100 lb.	2.20
Soda ash, 58%, in paper bags, per 100 lb. dense	1.60
Sulphate of aluminum, commercial, in 100-lb. bags f.o.b. works	1.65
Sulphate of copper, in bags, 99% per 100 lb. f.o.b. works	8.95

STRUCTURAL CLAY BUILDING TILE, BRICK AND LIME—DELIVERED

	STRUCTURAL CLAY TILE PARTITION — SCORED † Per M. lots of 2,000 pieces or over, 3x12x12 in.	4x12x12 in.	8x12x12 in.	STRUCTURAL CLAY TILE — LOAD BEARING — SCORED Per M. lots of 2,000 pieces or over, 8x12x12 in.	10x12x12 in.	12x12x12 in.	BRICK Per M. in quantity Common backing	Straight hard	LIME Per ton, In paper, Carload lot, Hydrated finishing	Common hydrated	Pulverized, or lump
Atlanta	.....	.....	.....	.....	.....	.....	$27.78	$27.78	$19.00	$17.50	$17.50
Baltimore	$180.00	$191.00	$358.00	$406.00	$530.00	$605.00	37.00*d*	42.00*k*	30.00	20.60	.....
Birmingham	118.00*p*	128.00*p*	236.00*p*	283.00*p*	.....	.....	23.50*f*	28.50*gg*	26.37	17.10	. .
Boston	196.00†	209.00†	392.00†	383.25†	.....	.....	33.50*p*	36.50*n*	30.00†	28.00†	. .
Chicago	135.00	145.00	280.00	.....	.....	.....	21.00	23.00	30.80	26.00	.....
										f	
Cincinnati	165.00*j*	195.00*j*	340.00*jdd*	.....	.....	.....	34.00*j*	46.00*j*	26.00*j*	24.25*j*	.....
Cleveland	149.00**	156.00**	.....	.....	.....	.....	32.00	32.00	25.50	23.50	31.00*ss*
Dallas	.....	118.00	.....	.....	.....	.....	19.75	35.25	32.00	21.80	.....
Denver	.....	.....	.....	.....	.....	.....	34.00	40.00	34.80*bb*	28.00*bb*	34.00*bb*
Detroit	127.75	136.25	255.55	.....	317.25	362.60	34.00*cc*	32.50*cc*	32.00	32.00	.....
Kansas City	115.50	122.50	245.00	245.00	303.50	367.00	26.00	26.00	30.50	24.50	27.00
Los Angeles	*r*	*r*	*r*	*r*	*r*	*r*	21.00§	.....	34.00	34.00	35.00
Minneapolis	171.50*p*	192.50*p*	386.00*p*	192.50*up*	.....	.....	32.00*ep*	36.00	37.00*bbc*	28.00*bbc*	38.00*bbds*
Montreal	130.00*uq*	162.50*uu*	300.00*uu*	.....	.....	.....	26.50	38.50	34.80	32.50	24.60*u*
New Orleans	170.00	170.00	310.00	.....	.....	.....	31.00	.....	.....	20.00	20.00
New York	138.70*h*	147.90*h*	203.40*ch*	207.20*hn*	.....	.....	38.50	.....	38.00	32.00	.....
Philadelphia	128.30	134.80	252.60	302.74	361.35	455.74	29.00	32.00	36.00	21.50	.....
Pittsburgh	112.00	117.00	189.00	216.00	279.00	317.00	32.00	42.00*y*	25.00	23.00	2.97*m*
St. Louis	138.00*cc*	158.50*cc*	313.00*cc*	313.00*cc*	351.00*cc*	.....	40.00*ul*	36.25*s*	.85*aaa*	.65*aaa*	1.10*aaspes*
San Francisco	156.85*q**	177.10*s**	235.30*ddn**	.....	.....	.....	37.00	.....	26.35	26.35	2.62*m*
Seattle	175.00*cc*	190.00*cc*	.....	190.00*ccw*	.....	.....	39.00*s*	40.00*s*	37.50*ahh*	1.50*f*	3.90*mAA*¶

† F.o.b. yard Roxbury. *a* Smooth. *b* Per 50 lb. bags. *c* 6 x 12 x 12 in.-3 cell. *d* Pulverized hot. *e* 5% 10th following month. *g* 5½ x 8 x 12. *h* F.o.b. trucks, job site N.Y.C. *j* Truck load or over. *k* $1.00 discount *l* Red face. *m* Per bbl., 180 lb. *n* 7½ x 7½ x 12. Speed title. *p* Truck lots. *q* Provincial and Municipal tax extra. *r* Not used because of earthquake danger. *s* 2% discount for cash. *t* 5½ x 8 x 11½. *u* Tax exempt. *v* Sand lime. *w* 5 x 8 x 12. *y* Stacked. *z* Pebble lime price per 80 lb. sack. *aa* Price per sack. Lime not sold per ton. *bb* LCL. *cc* Truck delivery. *dd* 6 x 12 x 12. *ee* Pebble lime. 80% common. *gg* Select. *hh* LCL. § F.o.b. yard. *ii* 75-lb. sack, no incr., ton price no longer quoted. ** Only 1 plant producing quotes on warehouse delivery, previous quotes were truck delivery. * F.o.b. Stockton.

PAINT, ROOFING—F.O.B. CARLOAD LOTS

	RED LEAD Per 100 lb. in 600-lb. (Approx.) bbl. Dry *a*	WHITE LEAD Per 100 lb. in 100 lb. cases in oil *w*	READY-MIXED PAINT Per gal., drums Graphite *b*	Aluminum *c*	Ferric Oxide *d*	ROOFING SUPPLIES Carload lots f.o.b. factory Rolls, slate surfaced, 85–90 lb. per sq.	Asphalt felt, per 100 lb.	Tar felt, Asphalt coating per gal.	Tar pitch 360 lb. bbl. per ton ¶
Atlanta	$20.75	$31.025	$1.75	$2.70	$1.65	$2.06‡	$2.06‡	$2.06‡	$1.00‡	$36.00‡
Baltimore	20.50	30.65	2.65	4.10	3.22	2.50	4.17	4.17	.42	37.00
Birmingham	20.75	31.025	3.90	3.40	....	2.80	2.75	2.75	....	40.50*ee*
Boston	20.50	30.65	....	....	....	2.80*gg*	2.70*gg*	2.70*gg*	.47*p*	42.00*g*
Chicago	20.50	30.65	....	....	....	2.73‡*u*	3.04‡*o*	3.04‡*o*	38.00‡*bbc*	43.00‡
Cincinnati	20.50	30.65	....	....	....	2.50	2.50	2.50	.42*y*	42.36
Cleveland	20.50	30.65	2.94*ppqA*	3.37*qqB*	2.80*qqC*	2.50‡*q*	2.50‡*o*	2.50‡*o*	.36‡*y*	40.00‡*kk*
Dallas	20.75	31.40	....	4.05	....	3.50*q*	3.75*o*	4.35*o*	.36	46.00
Denver	21.00	31.15	3.07	5.15	2.87	3.25*o*	2.76*o*	2.76*o*	.47*ff*	42.00 ¶
Detroit	20.50	30.65	2.35	3.40	2.50	2.50	2.50*f*	2.50	.51	40.00
Kansas City	20.50	30.77	....	2.71*ys*	2.65	2.39	2.43*o*	2.43*o*	.313	48.00
Los Angeles	20.50	30.90	3.30	4.50	4.20	2.97	2.01*e*	*l*	.44	*l*
Minneapolis	20.50	28.55/30.77	....	....	....	2.50*idd*	2.50*idd*	2.50*idd*	.34*idd*	37.00*r*
Montreal	....	20.70	3.75*t*	4.20*t*	4.62*t*	3.80*t*	3.85*tf*	3.85*tf*	3.00*kt*	3.15*kt*
New York	20.50	30.65	3.45*y*	....	....	2.50	2.50*o*	2.50*o*	.34*x*	37.00
Philadelphia	20.50	30.65	3.25	3.65	3.15	2.54	2.94	2.94	.37	26.00
Pittsburgh	20.50	30.65	2.45	2.55	2.20	2.90	2.90*o*	2.90*o*	.39	42.00
St. Louis	20.50	30.65	....	....	....	2.50	2.50*A*	2.50*A*	.37*y*	38.00
San Francisco	20.50	30.90	2.40	3.40	....	2.95	4.00*aa*	.....	.49	.....
Seattle	20.50	31.15	2.81*m*	2.67*m*	....	3.58*mqcc*	3.05*Amcc*	.....	.59*mce*	52.00*mee*

‡ Delivered. Note: Red lead in oil 50c higher than white lead in oil. *a* Red lead prices change frequently due to pig lead price changes. *b* U. S. War Dept. Spec. 3-49A. *c* ASTM Spec. D266–31. *d* 80% minimum ferric oxide. *e* 15 lb. *f* Per 432 sq. ft. *g* F.o.b. yard Roxbury. *h* Per roll, 65 lb. *i* Net carload lot prices; Minneapolis and vicinity. *j* Asphalt pitch. *k* Per cwt. *l* Not used. *m* 1% discount for cash. *o* Per 60-lb. *p* 6-drum. *q* Per 90-lb. roll. *r* F.o.b. factory chicago. *s* 466 Med. *t* Federal tax included. *u* Per 90 lb. square. *v* Per ton. *w* Price to large paint contractors is $1.25 less. *x* Mineral surfaced. *y* 55-gallon container. *z* Drums. *aa* Approximate cost per 100 lbs. *bb* Roofers coating and cement. Price per ton. *cc* LCL, truck delivery. *dd* 2% cash discount. *ee* Asphalt, in 100 lb. package. *ff* 5-gal drums. *gg* F.o.b. factory. *hh* Incl. freight. *A.* TTP 27. *B.* TTA 468A. *C.* TTP 31A.

SKILLED AND COMMON WAGE RATES—PER HOUR

	Brick-layers	Car-penters	Struct. Iron Workers	Hoisting Engineers	Plas-terers	Electrical Workers	Steam-fitters	Common Labor Building	Common Labor Heavy Const.
Atlanta	$2.75	$2.35	$2.335	$2.25	$2.50	$2.50	$2.75	$1.05	$1.05
Baltimore	3.20*c*	2.42	2.80	2.60/2.80	2.50	2.75	2.50	1.38	1.38
Birmingham	2.75	2.125	2.42	2.06	2.42	2.50	2.50	1.10	1.20
Boston	2.888	2.475	2.75	2.80	2.97	2.80	2.695	1.815	1.815
Chicago	2.825‡	2.70	2.80	2.65	2.96*n*	2.81*n*	2.75	2.05*m*	2.05*m*
Cincinnati	2.84	2.475	2.665	1.825/2.85	2.67	2.70	2.64	1.65	1.65
Cleveland	3.00	2.825‡	2.825	2.70	2.825	2.825	2.825	2.10	2.10
Dallas	3.4375†	2.3375	2.50	2.475	3.125†	2.6125	2.6125	1.20	1.35
Denver	3.00	2.35	2.30	2.48	3.00	2.65	2.65	1.575	1.575
Detroit	2.85	2.60	2.95*m*	2.80	3.005*l*	2.85	2.75*m*	1.90	1.90
Kansas City	2.86	2.365	2.53	2.365/2.61	3.025	2.66	2.625	1.73	1.73
Los Angeles	3.00	2.35	2.50	2.30	3.125	2.625	2.625	1.75	1.75
Minneapolis	2.90	2.40	2.57	2.35	2.75	2.71*n*	2.55	1.67	1.67
New Orleans	2.70	2.06	2.45	2.325	2.375	2.50	2.45	1.10	1.10
New York	3.548*cr*	3.096*o*	3.348*o*	3.348*o*	3.599*ar*	3.456*as*	3.2865*p*	1.90	1.90
Philadelphia	3.31*t*	2.65	3.14*t*	2.65/2.95	3.075*k*	3.28/3.53*u*	2.85*v*	1.81	1.81
Pittsburgh	3.00	2.75	2.75	2.825	2.75	2.75	2.80	1.70	1.70
St. Louis	3.09*c*	2.70*h*	2.75	2.76	3.00	2.887*c*	2.625	1.77	1.77
San Francisco	3.25*b*	2.45	2.70	2.41	3.125	2.75	2.75	1.70	1.70
Seattle	3.30	2.42	2.87	2.50	3.00	2.65	2.75	1.97	2.00
Montreal*	1.75	1.55	1.65	1.45	1.75	1.65	1.70	1.09	1.03

a 6 hr. day. *b* 7 hr. day. *c* Incl. 3% vacation stamp fund for bricklayers; 4% for electricans plus 1% N.P. * Cost of living bonus now included in basic wage. *t* Includes 5*c* per hr. tool replacement. † Plus $5.00 daily bonus. *h* $2.45 homes and housing + 5*c* vacation fund. *i* Incl. 2% welfare. *j* Incl. 9*c* hr. welfare. *k* Incl. 7½ *c* hr. welfare fund. *l* Incl. 4% vacation fund. *m* Incl. 5*c* hr. welfare ins. fund. *n* Incl. 6*c* hr. welfare fund. *o* Inc.. 3% welfare fund. *p* Incl. 3% welfare fund and 3% pension fund. *r* Incl. 3% welfare fund and 20*c* pension fund. *s* Incl. 4% welfare and pension fund and 4 % vacation fund. *u* Incl. 1% welfare fund. *v* Incl. 10*c* welfare fund.

MEXICO CITY PRICES

In Pesos, F.o.b. City		Sept. '51	Oct.'51
Common Wages—Building (8 hr. day)	av. per hr.	.75*	75*
Common Wages—Heavy Const. (8 hr. day)	av. per hr.	.75*	75*
Skilled Labor Wages			
Carpenters (8 hr. day)	av. per hr.	1.88*	1.88*
Bricklayers (8 hr. day)	av. per hr.	1.88*	1.88*
Struct. Iron Workers (8 hr. day)	av. per hr.	1.25*	1.28*
Struct. Steel Shapes	per metric ton	1,111 01	1111.01
Reinf. Steel, Corr. Rods			
⅜" x 11 meters	per ton	1,261 51	1261.51
½" x 11 meters	per ton	1,251 13	1251.13
⅝" x 11 meters	per ton	1,240 75	1240.75
¾" x 11 meters	per ton	1,230 37	1230.37
⅞" x 11 meters	per ton	1,230 37	1230.37
1" x 11 meters	per ton	1,230 37	1230.37
Gravel truck load of 3½ cu. meters			
Blue Gravel	per tr. load	45 00	45 00
Rose Gravel	per tr. load	40 00	40 00
Cement, Std. Port. (Tolteca)	per ton	145 00	145 00
Lumber			
Mex. 3rd Class Pine	per M ft.	850 00	1000 00
1st Class Pine	per M ft.	1400 00	1400 00
2nd Class Pine	per M ft.	1100 00	1100 00

* Increase by 1/6th—work 6 days, paid for 7 days.

ENR Skilled Average: (Bricklayers, Carpenters, Iron-workers) $2.728. **ENR Common Average:** $1.646.

Cummins® Diesels
do so many jobs-so much better

Shovels, cranes, industrial locomotives

Drilling rigs, centrifugal pumps, generator sets

Buses and on-highway trucks

...because they're custom-built to fit the job

Earthmovers, logging yarders and loaders

Off-highway trucks, crawler tractors

Work boats, pleasure craft

Lightweight, high-speed Diesels (50-550 hp) for these and many other uses

---

...because they're

BUILT NOT ONCE BUT TWICE

Rugged, lightweight, high-speed Cummins Diesels are at work everywhere. Each engine is built *twice*. It's assembled, run-in tested, disassembled and inspected, then reassembled and tested again. This extra care in building, plus Cummins exclusive fuel system and an efficient and expanding service and parts organization, means minimum "down time", more power and profits for the user. See your Cummins dealer.

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CONSTRUCTION REPORTS

Bids Asked—Low Bidders—Contracts Awarded

Compiled by Business News Department—Engineering News-Record, 330 W. 42nd St., New York 18, N. Y.

ELSIE EAVES, Manager *J. A. MAHONEY, Reports* *M. R. ROESSLER, Statistics*

NEW ENGLAND

HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

NEW HAMPSHIRE—Dpt. P. Wks. & Hys., Concord,

S. V. Rossi Constr. Co., 49 McDermott Ave., Torrington, Conn., LB. $308,584, surf. tr. gravel 4.288 mi., also 36 ft. and 45 ft. rein.-con. slab bridges, U.S 3 in Columbia Bids Oct. 18. CD 10/11.

MASSACHUSETTS—Commonwealth of Mass., Dpt. Pub. Wks., 100 Nashua St., Boston,

Daniel O'Connell's Sons, Inc., 480 Hampden St., Holyoke, Mass. LB $73,786, est. $90,000, repairing superstructure of North End Bridge over Connecticut River, West Springfield. Awarded Oct. 23. CD 10/11.

▲ **MASSACHUSETTS**—Commonwealth of Mass., Dpt. P. Wks., 100 Nashua St., Boston,

Bayer & Mingolla Constr. Co., 90 Lincoln St., Worcester, Mass., LB $2,279,397, est. $2,500,000, State Hy. Rte. 2, Harvard-Lancaster;

Turner & Brewer, Inc., Grand Ave., Falmouth Heights, Mass., LB $200,076, hy. work, Poplis and Fairgrounds Rds., Nantucket, Dukes Co. Bids Oct. 23. CD 10/11.

R. Zoppo Co., 842 Providence Hy., Norwood, Mass. CA $600,968. Contr. 29, exten. trunk water mains, SPRINGFIELD, MASS. City, Bd. Water Comrs., City Hall, Springfield, Mass. CD 10/16, under LB.

City, Dpt. P. Wks., Woburn, Mass. Owner Builds. $190,000. sewarage sys., Harrison Ave. and Ellis St., Montvale Ave., WOBURN, MASS. CD 10/24.

BUILDINGS

LOW BIDS AND CONTRACTS

Wright & Morrissey, Inc., 158 Bank St., Burlington, Vt., LB. $414,874, est. $350,000. Public HEALTH LABORATORY, BURLINGTON, VT. State, State Bldg. Council, State House, Montpelier, Vt. Bids Oct. 23. CD 10/1.

Munford Constr. Co., c/o S. G. Munford, 750 Main St., Windsor, Conn., Owner Builds, $800,000. 57 HOUSES, Paradise Acres at Park and Matianuk Aves., WINDSOR, CONN.

MIDDLE ATLANTIC

BIDS ASKED—HEAVY CONSTRUCTION

N. Y., New York—B.A. 11/20—Bd. Water Supply, 120 Wall St., Zone 5, Contr. 414, furnishing, testing, del. two 150 kva. indoor unit sub-stations and two 45-kva. indoor and three 15 kva. outdoor transformers for the Neversink and East Delaware Intake Chambers and the Downsville Release Water Chamber of the Delaware Aqueduct. CD 6/6/44.

N. Y., Brooklyn—B.A. 11/27—Pres. Brooklyn Boro, Boro Hall, Zone 2, grading, paving, construct utilities, wall and grade separation, incl. bridge at Joralemon St., recreation facilities topsoiling, planting, etc. Brooklyn Queens Connecting Hy. from Atlantic Ave. to approx. 105 ft. north of Joralemon St., grading, paving, construct utilities, bridge over Flushing Ave., grade separation, recreation facilities, landscaping, etc. in Brooklyn-Queens Connecting Hy. from Park to Kent Aves., Plans deposit $10 each. CD 8/31/45.

BIDS ASKED—BUILDINGS

N. Y., New York—HOSPITAL IMPRVS.—B.A. 11/14—Dpt. P. Wks., Municipal Bldg., Zone 7, general constr.; plumbing; heating; yard electrical work for construction of yard work at the Bird S. Coler Memorial Hospital and Home on Welfare Island, Manhattan Boro. Plans deposit $25. CD 10/17/50.

N. Y., Flushing—HIGH SCHOOL ANNEX—B.A. 11/16—Supt. School Bldgs., Design & Constr., 49 Flatbush Ave. exten. Brooklyn, Zone 1, general constr.; plumbing and drainage; heating and ventilating; electrical and lighting fixtures for Newtown High School Agricultural Annex, Main St. and Gravett Rd., Queens Boro. Plans deposit $15 general constr. $7 each others. CD 10/19.

N. Y., Brooklyn—SCHOOL—B.A. 11/19—Supt. School Bldgs. Design & Constr., 49 Flatbush Ave. exten. Brooklyn, Zone 1, general constr.; plumbing and drainage; heating and ventilating; electrical and lighting fixtures for P.S. 277, Gerritsen Ave., near Avenue X, Brooklyn Boro. Plans deposit $15 general constr. $7 each others.

N. Y., Brooklyn—SCHOOL—B.A. 11/27—Supt. School Bldgs., Design & Constr., 49 Flatbush Ave. exten., Brooklyn, Zone 1, general constr.; plumbing and drainage; heating and ventilating, electrical and lighting fixtures for P.S. 287, Concord St., Hudson Ave. and Navy St., Brooklyn Boro. Plans deposit $15 general constr., $7 each others. CD 5/18.

Pa., New Cumberland—HOUSING—B.A. About 11/27—U. S. Eng., 24 St. and Maryland Ave., P.O. Box 1715, Baltimore 3, Md., construct, manage, finance 25 three-bedroom family units; 25 two-bedroom family units at New Cumberland General Depot, approx. 8 mi. southwest of Harrisburg; Serial No. ENG 19-020-52-13. Plans deposit $10. Bids June 8 rejected. LB, $431,292. CD 6/20, under LB.

HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

▲ **NEW YORK**—Bureau Contracts & Accounts, The Governor Alfred E. Smith State Office Bldg., Albany,

Horn Constr. Co., Inc., 6 Miller Ave., Merrick, L. I., N. Y. LB. $99,290, est. $130,000, pile foundation 0.01 mi. Nassau Expressway-Seagirt, Boulevard Interchange, Cont. 1, N. E. 51-1, Nassau Co.;

A. S. Wikstrom, Inc., Box 217, Skaneateles, N. Y., LB. $1,624,287, est. $1,961,000. grading, drainage 4.15 mi. Ontario Thruway (Tyre-Montezuma) O.T. 51-6 Cayuga and Seneca Counties;

cancelled bids to have been opened Oct. 24, c. conc. pavement 1.82 mi. New York State Thruway-Ontario Sect. (Harlem Ave.-William St.) Henry St.; Parker, and Dingens St., FA.OT-51-8, FA.ST. 51-7, Erie Co. CD 10/12.

Shanahan Constr. Co., Inc., 109 Canal St., Ellenville, N. Y., LB. $733,275, Contr. 387, clearing approx. 1,150 acres, grubbing about 475 acres and required excavation, seeding, removal of excrementitious material, The Neversink Reservoir, in preparation for storage of water, in town of Neversink, NEW YORK, N. Y. Bd. Water Supply, 120 Wall St., New York 5, N. Y. Bids Oct. 23. CD 10/2.

BUILDINGS

LOW BIDS AND CONTRACTS

▲ **Turner Constr. Co.**, 420 Lexington Ave., New York 17, N. Y. CA. Approx. $3,000,000. PLANT to mfg. aerial cameras, radio direction finders, etc. at 4½ acre site on Northern State Parkway, JERICHO, N. Y. Fairchild Camera & Instrument Corp., 88-06 Van Wyck Expressway, Jamaica, N. Y. Kahn & Jacobs, 2 Park Ave., New York 16, N. Y. archts.

▲ **Foster Wheeler Corp.**, 165 Broadway, New York 6, N. Y. CA. design and construct, 125,000 bbl. per stream day atmospheric and vacuum REFINERY Unit, PHILA. PA. Gulf Oil Corp., 30 St. and Penrose Ave., Phila. Pa. CD 10/17.

SOUTH

BIDS ASKED—HEAVY CONSTRUCTION

† **La., Lake Charles**—STORAGE BLDG.—B.A. 11/15—War Dpt., U. S. Property & Disbursing Officer, Headquarters Bldg., Jackson Barracks, New Orleans, Zone 12, motor vehicle storage bldg., Inv. 16-104-52-2. CD 3/28.

† **Louisiana**—B.A. 11/20—U. S. Eng., P. O. Box 60, Vicksburg, Miss., 1,757,000 cu. yd. earthwork, etc. on left descending bank of Black River, Inv. 52-33, Concordia Parish. CD 9/25.

BIDS ASKED—BUILDINGS

Ala., Florence—HOSPITAL—B.A. 11/15—Eliza Coffee Memorial Hospital, c/o Turner & Northington archts., Medical Arts Bldg., hospital annex. Extended date. CD 9/21.

PROJECTS COVERED

Projects—By Size

Construction projects here reported cover the United States and Canada, bank of these minimum sizes or larger: water supply, earthwork, waterways $34,000; other public works $60,000; industrial buildings $82,000; other buildings $300,000.

Classes of Construction

(Name in order of Listing)

Water Supply	Latin America
Sewers, Waste Disposal	Public Buildings
Bridges	Commercial Buildings
Streets & Roads	Industrial Buildings
Earthwork, Waterways	Unclassified

Stages Reported

PROPOSED WORK: Including appointment of engineers or architects.

BIDS ASKED (new announcements only). For full calendar, see also preceding issues of ENR.

LOW BIDDERS: On jobs below $500,000 value all low bidder news will be the final reports published on the projects inviolved except where award is not made to the low bidder. In this case, a supplementary contract award report will be published.

CONTRACTS AWARDED: Except awards to low bidders previously reported in low bidder stage.

Dates shown are of issue in which last previous report was published.

Symbols and Abbreviations Include:

†	Federal Government
▲	Project of $1,000,000 or over.
B.A.	Bids Asked
ENR	Engineering News-Record
CD	Engineering News-Record Construction Daily

La., Franklin—HOSPITAL—B.A. 11/20—St. Mary Parish, hospital, Fuhrman & Geier, 2115 E. Ramsey Dr., Baton Rouge, archts. Bids 9/20 rejected. CD 10/3, under LB.

SOON LETS CONTRACT—BUILDINGS

Ky., Lexington—HOSPITAL—Good Samaritan Hospital, 210 S. Limestone St., Lexington, soon lets contract hospital wing, $850,000, John T. Gillig, 180 Walnut St., archt. Former bids rejected. LB, $748,130. CD 3/15, under LB.

HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

Wiley N. Jackson Co., R. F. D. 4, Roanoke, Va., CA. $75,593. water main exten. eastward along Orange Ave. from Fourth St. N. E. to Vinton Rd. and then into the Idlewild-Kenwood area, ROANOKE, VA. City, Municipal Bldg., Roanoke, Va. CD 8/8/50.

Blythe Bros., Box 989, Charlotte 1, N. C., CA. $533,000. construct 24 in. pipe line from Rands Mill dam to the filter plant, RALEIGH, N. C. City, City Hall, Raleigh, N. C. Bids Oct. 10. CD 10/17, under LB. City, received no bids Oct. 20. water well drilling, FORDOCHE, LA. CD 10/10.

† **McGraw Engineering Co., Inc.**, 684 Loudon Ave., Lexington, Ky. LB $328,676, est. $489,232, c.l. water pipe LB $308,300, est $434,122, asbestos water pipe, Blue Grass Ordnance Depot, LEXINGTON, KY. U. S. Eng., 830 W. Broadway, Louisville, Ky. Bids Oct. 23. CD 10/1.

BUILDINGS

LOW BIDS AND CONTRACTS

Eastern Constr. Co., Falls Church, Va., CA. $688,674. construct Arlington Elementary SCHOOL, ARLINGTON, VA. Arlington Co., Arlington, Va. McLeod & Ferrara, Arlington, Va., archts. Bids Oct. 17. CD 4/24.

▲ **Engene Simpson & Bro.**, 2 W. Walnut St., Alexandria, Va. LB. Total LB $1,046,086, Base Bid $782,777, Alt. A, $217,493, new jail wing; Alt. B, $22,648, court house tower; Alt. C, $23,186, alterations to existing bldg., for COUNTRY COURT HOUSE, FAIRFAX, VA., Fairfax Co., Court House, Fairfax, Va. Bids Oct. 24. CD 9/20.

J. C. Stockton & Son, Augusta, Ga., LB. $821,000 HOSPITAL addns., alterations, AUGUSTA, GA. University Hospital Auth., c/o Scroggs & Ewing, archts., 1331 Green St., Augusta, Ga. Bids Oct. 23. CD 9/27.

MIDDLE WEST

BIDS ASKED—HEAVY CONSTRUCTION

† **Illinois**—B.A. 11/27—U. S. Eng., 520 Merchandise Mart, Chicago, Zone 54, Marseilles Lock alterations, Mile 244.6, Illinois Waterway, Illinois River, Serial No. CIVENG 11-032-52-8.

BIDS ASKED—BUILDINGS

Ind., Columbia City—SCHOOL—B.A. 11/21—Bd. School Trustees, Columbia City, Mary Raber School. Plans deposit $25. Edward D. James, 122 E. Michigan Ave., Indianapolis, archt. CD 9/21.

Ind., Elkhart—HOSPITAL—B.A. 11/27—Elkhart General Hospital Assn., Elkhart, hospital addn., alterations. Lewis J. Sarvis, 258 Champion St., Battle Creek, Mich., archt. CD 8/27/48.

HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

Lomelo Constr. Co., 550 Dan St., Akron, O., LB. $62,376. widen Kenmore Blvd. from Manchester Rd. to 12 St., AKRON, O. City, M. L. Davis, Service Dir., Municipal Bldg., Akron, O. Bids Oct. 19. CD 10/9.

C & C Constr. Co., 2001 E. Pontiac St., Fort Wayne, Ind. CA, $34,378, building spur track and trestle for unloading chemicals for water filtration plant, FORT WAYNE, IND. Bd. P. Wks., City Hall, Fort Wayne, Ind. Bids Oct. 9, awarded Oct. 23. CD 10/2.

W. L. Hall, Atwood, Ill., CA, $351,346, est. $300,000. 12,800 lin. ft. 6 in. gas transmission line, 80,610 lin. ft. 2- to 6-in. distr. mains and 80,000 lin. ft. ¾- to 1½-in. service connections for natural gas system, SULLIVAN, ILL. City, City Hall, Sullivan, Ill. CD 10/4.

BUILDINGS

LOW BIDS AND CONTRACTS

▲ **General American Transportation Co.**, 135 S. La Salle St., Chicago, 3, Ill. Own Forces, $1,500,000 TERMINAL EXPANSION, ARGO, Ill., CD 8/21.

C. A. Petry & Sons, Champaign, Ill., CA $821,972 general contract. Junior HIGH SCHOOL, URBANA, ILL. Bd. Educ., Urbana, Ill. Bids Sept. 27.

Henry C. Weber Constr. Co., 515 Bay City Bank Bldg., Bay City, Mich. CA $200,000. 1 story, bsmnt., electric SUB-STATION, incl. transformers, tower, accessories, voltage regulators, etc., BAY CITY, MICH. City, George MacPhail, mgr., Bay City, Mich. Bids July 23. CD 7/13.

▲ **Bryant & Detwiler Co.**, 2304 Penobscot Bldg., Detroit, Mich. CA Approx. $1,970,000. 1 story, brick, concrete Finishing Rouge PLANT, DEARBORN, MICH. Ford Motor Co., Rouge Plant, 3000 Schaefer St., Dear-

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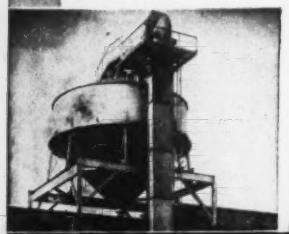

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STEEL COMPANY
Pittsburgh, Pa. 3414 Neville Island
Des Moines, Ia. 915 Tuttle Street
Santa Clara, Cal. 621 Alviso Road

born, Mich. Giffels & Vallet, 1000 Marquette Bldg., Detroit, Mich., archts. CD 6/7/46.

Lerner-Linden Constr. Co., 9940 Roselawn St., Detroit, Mich. CA $205,000. 2 story, brick masonry FACTORY and OFFICES, Michigan Ave., DETROIT, MICH. Hancock Steel Co., Inc., 4086 Michigan Ave., Detroit, Mich. CD 8/15.

Midwest Iron & Metal Co., 124 S. Military St., Detroit, Mich. Owner builds. $85,000. 1 story, cement blocks FACTORY unit, Cavalry St., DETROIT, MICH.

The Austin Co., 227 Curtis Bldg., Detroit, Mich. CA $900,000. 2 story, brick, steel, concrete organic research LABORATORY unit, MIDLAND, MICH. Dow Chemical Co., Midland, Mich. CD 8/22.

WEST OF MISSISSIPPI

BIDS ASKED—HEAVY CONSTRUCTION

▲ **Tex., Waco**—COLISEUM—3 A. 11/15—McLennan Co., Court House, Program 1, coliseum, $450,000; Program 2, 4-H bldgs. and dining hall, $475,000; Program 3, agricultural exhibit bldgs., $575,000. Extended date. Harris H. Roberts, 1103 Medical Arts Bldg., and Broad & Nelson, 505 N. Ervay St., Dallas, archts. Ziegler, Houseman & Assoc., 1900 N. St. Paul St., Dallas, engrs. CD 10/24.

† **Colo., Denver**—PARKING APRONS, etc.—B.A. 11/27—U. S. Eng. 1709 Jackson St., Omaha, Neb., constr. parking aprons and taxiway and aircraft maintenance docks at Lowry Air Force Base, Eng 25-066-52-24. Extended date. CD 10/24.

† **S. D., Rapid City**—DOCK REFUELING FACILITIES—B.A. 11/27—U. S. Eng., 1709 Jackson St., Omaha, Neb., dock refueling facilities and fuel oil storage at Rapid City Air Force Base, Weaver, Inv. 52-15. CD 3/20.

BIDS ASKED—BUILDINGS

▲ **Tex., San Antonio**—POWER PLANT, etc.—B.A. 11/28—State of Texas, Bd. for Hospitals & Special Schools, 45 and Lamar Sts., Austin, power plant, $150,000, CD 10/8; 400-patient tuberculosis hospital, $1,500,000. Plans deposit $50. Atlee B & Robert M. Ayres, Transit Tower Bldg., archts. CD 5/3.

Mo., St. Louis—HOUSING—B.A. 12/4—St. Louis Housing Auth., Gerard B. Cleary, exec. dir., 901 Washington Ave., Zone 1, 1,736 dwelling units, incl. demolition certain bldgs., Proj. MO-1-4. Plans deposit $100. Hellmuth, Yamasaki & Leinweber, 722 Chestnut St., Zone 1, archts. CD 2/20.

SOON LETS CONTRACT—BUILDINGS

† **Tex., Texarkana**—BUILDING, etc.—Red River Chemical Co., Texarkana, soon lets contract, 1 story, 100x230 ft., brick face building for Red River Arsenal; $450,000. Reinheumer & Cox, 411 Texarkana Natl. Bank Bldg., archts.

HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

† **Soil Conservation Service**, 434 N. Plankington Ave., Milwaukee, Wis., rejected bids Sept. 25, Sect. 1, flood control works and wooden bridges, near Turin, IOWA. LB $47,776. CD 10/11, under LB.

Hoak Constr. Co., P. O. Box 37, West Des Moines, Ia. LB $220,714. 140.9 mi. rural distr. lines, Linn, Putnam and Sullivan Counties, MISSOURI. North Central Missouri Electric Co-operative, Inc., Milan, Mo. Bids Oct. 18. CD 7/18.

J. & S. Constr. Co., 9446 W. Milton Ave., Overland, St. Louis 14, Mo. LB $131,000. 12,449 ft. 6- to 30-in. vit. clay or rein. con. sanitary relief sewers, FLORISSANT, MO. City, Henry F. Koch, city clk. and registrar, Florissant, Mo. Bids Oct. 22. CD 10/16.

J. O. Lawton & Sons, Lubbock, Tex., CA. $119,000. rural distr. lines, sys. imprvs., 2-way radio, Dallam Co., TEXAS. Rita Blanca Electric Co-operative, Dalhart, Tex. CD 7/11/50.

City, Timpson, Tex. cancelled bids to have been opened Sept. 28, water supply well, addnl. lines, TIMPSON, TEX. $40,000. Will re-advertise. Wisenbaker, Fix & Assoc., 110½ S. Bois d 'Arc St., Tyler, Tex. engrs. CD 9/5.

City, Timpson, Tex., cancelled bids to have been opened Sept. 28, sanitary sewer lines, sys. rehabilitation TIMPSON, TEX. $75,000. Will re-advertise. Wisenbaker, Fix & Assoc., 110½ S. Bois d 'Arc St., Tyler, Tex. engrs. CD 9/5.

Bd. Water Comn., City and County Bldg., Denver, Colo., Force Account, $44,655, est. over $34,000, installing 6- to 12-in. water mains to provide service for 230 new residences at South Forest to South Holly St. from Eastman to E. Hampden Aves., DENVER, COLO. CD 1/9/48.

BUILDINGS

LOW BIDS AND CONTRACTS

The Austin Co., Arcade Bldg., 812 Olive St., St. Louis 1, Mo. CA 1 story, 78x107 ft., brick, concrete FACTORY addn., ST. LOUIS, MO. R. E. Klingbill Co. and Day-Brite Lighting, Inc., 5411 Bulwer Ave., St. Louis 7, Mo., lessee. H. W. Guth, 3859 Connecticut St., St. Louis 18, Mo., archt.

Industrial Constr. Co., 4150 Laclede Ave., St. Louis 8, Mo. CA 1 story, 93x102 ft., brick, concrete WAREHOUSE and FACTORY, 4330 Fyler Ave., ST. LOUIS, MO. Barbour Co., 4114 Sarpy Ave., St. Louis 10, Mo. Frank L. Thompson, 10408 Manchester Rd., Kirkwood St. Louis 22, Mo.

MacDonald Constr. Co., 1310 S. Grand Blvd., St. Louis 4, Mo. CA $125,000. 1 story, 52x220 ft. ICE CREAM PLANT STORAGE addn., ST. LOUIS, MO. Pevely Dairy Co., 1101 S. Grand Blvd., St. Louis 4, Mo.

Merle-Jung, Inc., 5555 West Park St., St. Louis 10, Mo. CA 80x80 ft., concrete PLANT and WAREHOUSE addn., ST. LOUIS COUNTY, MO. California Spray Chemical Corp., Addie Rd. and Rock Island Railroad Tracks, Maryland Heights, St. Louis Co., Mo.

M. W. Watson Constr. Co., National Bank of Topeka Bldg., Topeka, Kan. CA Approx. $450,000. HOSPITAL addn., HUTCHINSON, KAN. Grace Hospital, Hutchinson, Kan. Schmidt, Garden & Erikson, 104 S. Michigan Ave., Chicago, Ill., archts.

Fisher Constr. Co., Box 6127, Houston, Tex., CA. $610,100. ENGINEERING and LIBRARY bldgs. COLLEGE, STATION, TEX. A & M College of Texas, College Station, Tex. Bids Sept. 27. CD 10/10, under LB.

Lloyd Blaylock, Bolton St., Dallas, Tex., Owner builds. Approx. $425,000. 50 DWELLINGS, IRVING, TEX. CD 10/8.

Grady Fowler & Assoc., Irving, Tex., Owner builds. $325,000. 18 DWELLINGS, IRVING, TEX. CD 10/8.

Schneider Constr. Co., 3004 W. Dallas St., Houston, Tex. CA. $710,543, general constr. Lakeview and Park Pl. Elementary SCHOOLS, PORT ARTHUR, TEX. Port Arthur Independent School Dist., Port Arthur, Tex. Bids Oct. 23. CD 9/26.

G. S. McCreless, 1102 Fair St. San Antonio, Tex., Owner Builds. Approx. $300,000. COMMUNITY CENTER, SAN ANTONIO, TEX. CD 10/8.

† **Utah-Leavell**, Box 298, Los Alamos, N. M., LB $178,989, est. $85,000. 4 concrete STRUCTURES, Inv. No. 291-52-27, LOS ALAMOS, N. M. U. S. Atomic Energy Comn., Los Alamos, N. M., Bids Oct. 19. CD 10/9.

FAR WEST

BIDS ASKED—HEAVY CONSTRUCTION

† **Washington**—B.A. 11/15—Bureau Reclamation, Dpt. Interior, Ephrata, earthwork, pipe lines, structures part-time farm units, block 701 laterals Columbia Basin Proj., in vicinity of Ephrata, Spec. DC 3578. L. N. McClellan, Bldg. 53, Denver Federal Center, Denver, Colo., ch. engr.

† **Calif., Inyokern**—B.A. 11/20—Constr. Officer, Bldg. 981, Naval Ordnance Test Station, Inyokern, aerodynamic ballastic track range headquarters, etc., NOY 70960, Spec. 32550. Plans deposit $140.

† **Washington**—B.A. 11/20—Bureau Reclamation, Dpt. Interior, Ephrata, fencing and protective structures, along East Low Canal, Rocky Coulee wasteway, Rocky Coulee diversion channel and Weber wasteway, constr. drainage inlets on East Low Canal and culvert and road crossing on Lind Coulee drain, Columbia Basin Proj., Spec. 117C-123. L. N. McClellan, Denver Federal Center, Denver, Colo., ch. engr.

† **Calif., Oxnard**—NAVIGATION AIDS, etc.—B.A. 11/21—U. S. Eng., 751 S. Figueroa St., Los Angeles, Calif. constr. navigation aids and antenna farm at Oxnard Air Force Base, ENG 05-52-10. CD 5/21.

† **Oregon**—B.A. 11/29—U. S. Eng., Bldg. 602, City-County Airport, Walla Walla, Wash., stop logs, lifting beams, fish screens and storage latches for draft tubes at McNary Dam, Inv. 52-38.

BIDS ASKED—BUILDINGS

Calif., Redwood City—CLASSROOM—B.A. 11/16—Sequoia Union High School Dist., Redwood City, classroom addn. to Menlo-Atherton High School, Building G, Atherton, Plans deposit $25. Arthur D. Janssen & Wm. H. Daseking, 1616 El Camino Real, Menlo Park, archts. CD 5/31/49.

† **Calif., Sacramento**—WAREHOUSES—B.A. 11/20—U. S. Eng., Wright Bldg., 3 general purpose warehouse at Sacramento Signal Depot, Spec. 1570.

Wash., Kennewick—SCHOOL—B.A. 11/20—School Dist. 17, Kennewick, 1 story, 190x270 ft., frame Westgate Elementary School, $450,000. Plans deposit $25. E. W. Morrison, 719 2 Ave., Seattle, Zone 4, archt. CD 7/27.

▲ **Calif., Bakersfield**—HOUSING—B.A. 12/15—Kern Co. Housing Auth., 517 Roberts Lane, 106 dwellings, field management office, etc., Contr. Calif. S-5, $1,016,300. Ernest L. McCoy, Hay Bldg., archt. CD 5/3.

HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

UTAH—State Road Comn., State Capitol, Salt Lake City.

Parson & Fife Constr. Co., P.O. Box 563, Brigham City, Utah, CA. $181,829, est. $200,176, construct 1.091 mi. 3 in. plant mixed bit. roadway on concrete base between Riverdale and Grant Ave. in Ogden, FAP No. UI-123 (4), Weber Co. Bids Oct. 10. CD 10/1.

UTAH—State Road Comn., State Capitol Bldg., Salt Lake City.

L. T. Johnson Constr. Co., 709 Wall Ave., Ogden, Utah, CA. $79,366, est. $89,799, construct 4.483 mi. 2 in. road mixed bit. roadway between Fairfield and Tooele Co. line, State Road, Proj. No. 73, Utah Co. Bids Oct. 16. CD 10/8.

WASHINGTON—State Hy. Dpt., Olympia,

J. L. Graham & Co., Chehalis, Wash., LB, $124,466 clearing, grading, draining, constr. treated timber pile trestle on 0.15 mi. Hy. 9-D Copalis to Pacific Beach Fed. Aid, Grays Harbor Co.;

K. L. Goulter Co., Exchange Bldg., Seattle, 4, Wash., LB, $827,781, clearing, draining, grading 3.6 mi. Primary Hy. 2, Summit to Olallie Creek, King Co. Bids Oct. 23. CD 10/9.

WASHINGTON—State Hy. Dpt., Olympia.

C. J. Montag & Sons, 1518 N.E. 78 Ave., Portland, Ore., LB, $305,984, steel girder railway undercrossing and temporary shoo-fly on Hy. 1, Vancouver, Clark Co. Bids Oct. 23. CD 10/9, under Streets and Roads.

† **Collins Concrete & Steel Pipe Co.**, 3851 N. Colorado Blvd., Portland, Ore, CA, $795,387, constr. Babcock Pumping Plant and lateral W35.9 Area W-8, West

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Canal laterals Columbian Basin Proj., Spec. DC-3514, WASHINGTON Bureau Reclamation, Dpt. Interior, Epharta, Wash. Bids Sept. 18, awarded Oct. 19. CD 9/11, under LB.

WASHINGTON—State Hy. Dpt., Olympia,

Peter Kiewit Sons Co., Longview, Wash., CA, $72,148 stockpiling 107,420 tons crushed stone surf. and ballast and 9857 tons mineral aggregates on Hy. 3, Wallula vicinity, Walla Walla Co.;

L. E. Hoback & R. H. Sussex, 1744 State St., Bellingham, Wash., CA, $114,283, draining, grading, surf., stockpiling 11 mi. Elliot and Doerr Rds. Fed. Aid, Grant Co.;

Birch-McCartney, Veradale, Wash., CA, $70,528, draining, grading, surf. 6 mi. Adams Rd., Fed. Aid, Grant Co.

L. J. Lavin, Spokane, Wash., CA, $77,958, draining, grading surf., stockpiling 8.68 mi. Moses Lake-Wheeler Rd. and airport Rd. Fed. Aid, Grant Co. Bids Oct. 23. Grand total $334,917. CD 10/9.

Shoreline Constr. Co., 12519 15 Ave. N.E. Seattle, Wash. $37,133 watermains, with pump and tank in area north Pine Lake between Sammamish and Beaver Lakes, SEATTLE, WASH. Water Dist. 82, c/o E. A. Duffy, engr., Lowman Bldg., Seattle, 4, Wash.

Construction Engineers & Contractors, 801 Portacoma Rd., Tacoma, Wash., CA, $65,744, Dock St. Pumping Station;

Coast Contractors, 2326 Fawcett Ave., Tacoma, Wash., CA, $85,256, five overlow structures, TACOMA, WASH. City, City Hall, Tacoma, Wash. CD 10/16.

† **S. Morgan Smith Co.**, York, Pa., LB. $228,005, diffusion-chamber valves for McNary Dam, Inv. 52-12, OREGON. U. S. Eng., Bldg. 602, City-County Airport, Walla Walla, Wash. Bids Oct. 18. CD 10/3.

L. A. & R. S. Crow, 2226 N. Rosemead St., El Monte, Calif., LB, $533,385, Sch. A, $200,355, Sch. B, $226,630, Sch. C; $733,740 Sch. A and B; $660,015 Sch. A and C, Glen Anne Dam, Cachuma Proj., Spec. DC3482, CALIFORNIA Bureau Reclamation, Dpt. Interior, Goleta, Calif. Bids Oct. 19. CD 10/2.

BUILDINGS

LOW BIDS AND CONTRACTS

University Presbyterian Church, 15 Ave. N.E. and E. 47 St., Seattle, Wash., Day Labor, $400,000 2 story, rein.-con. CHURCH addn., SEATTLE, WASH. Whitehouse & Price, Hutton Bldg., Spokane, engrs. CD 9/25/47.

Veterans Admin., Munitions Bldg., Wash., 25, D. C., received no bids Oct. 23, 36,000 cu. ft. masonry LAUNDRY addn. at Veterans Hospital, Walla Walla, Wash. CD 9/25.

A. F. Stewart, 1130 Keith Ave., Berkeley, Calif., LB $307,006, New Mills Elementary SCHOOL, BENICIA, CALIF. Benicia Unified School Dist., Benicia, Calif. Bids Oct. 18.

Henry George & Son, Hutton Bldg., Spokane, Wash., LB $656,813, 850,000 bu. GRAIN ELEVATOR addn., LONG VIEW, WASH. Port of Longview, Longview, Wash. Bids Oct. 23. CD 10/9.

California Builders, Inc., 5525 Marshall St., Oakland, Calif. LB, $325,734, New Pittsburgh Heights Elementary SCHOOL, PITTSBURG, CALIF. Pittsburgh Unified School Dist. 250 School St., Pittsburg, Calif. Bids Oct. 18.

ALASKA

BUILDINGS

LOW BIDS AND CONTRACTS

▲ † **Valle-Sommers Co.**, 407 3 Ave., W., Seattle, Wash., LB, $3,932,254, est. $3,500,000. 240x275 ft. frame, steel HOSPITAL. 83x126 ft. SERVICE BLDG.; 2 story, 158x178 ft. QUARTERS BLDG., 56x162 ft. STORAGE BLDG. for Alaska Native Service, ANS Proj. 501-245, BETHEL, ALASKA. Bureau Indian Affairs, Dpt. Interior, Interior Bldg., 19 and C Sts., Wash. 25, D. C. Bids Oct. 23. CD 10/1.

CANADA

BIDS ASKED—BUILDINGS

Ont., Ottawa—HOUSING—B.A. 11/13—R. P. Opie, c/o Central Mortgage & Housing Corp., 441 Queen's Quay W., Toronto, 2B, Ont., 85 single family units at Uplands, Approx. $625,000. Plans deposit $50. S. M. Connolly, c/o owner, engr. CD 11/13/50.

HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

BRITISH COLUMBIA—Province of B. C., Parliament Bldg., Victoria,

General Constr. Co., Ltd., Granville Island, Vancouver, B. C., LB, $163,516, reconstructing 1.9 mi. Trans-Canada Hy. comprising the Tappen-Salmon River Section. CD 3/24/49.

Sterling Constr. Co. Ltd., 2494 Sandwich St. E., Windsor, Ont., CA, $250,000, sewage disposal plant and water, sanitary and storm sewers at air force station NORTH BAY, ONT. Defence Constr. (1951) Ltd. 441 Queen's Quay W., Toronto, Ont. Bids Oct. 2, awarded Oct. 23. CD 9/28.

Charles Duranceau Ltee, 2545 Jacques Hertel St. Montreal, Que., CA, $268,000, SHED 14 extension, Montreal Harbor, MONTREAL, QUE. National Harbor Bd. West Block, Ottawa, Ont.

BUILDINGS

LOW BIDS AND CONTRACTS

Defence Constr. Ltd., 441 Queens Quay W., Toronto, Ont., cancelled bids to have been opened Sept. 18, BARRACK BLOCK NO. 4—250 men, CAMP BORDEN, ONT. CD 9/7.

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HIGHWAY WIDENING
and PATCHING
BRIDGE DECKS
SPILLWAYS
and
MANY OTHER JOBS

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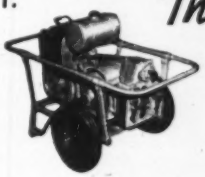

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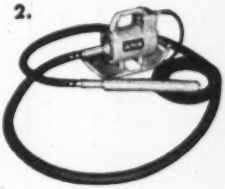

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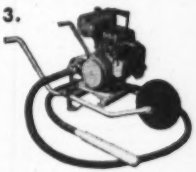

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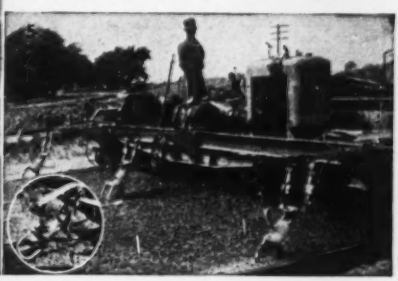

A. S. Paterson Ltd., 1313 Wellington St., Ottawa, Ont., CA, Approx. $500,000, No. 1 and 2 STORAGE Bldgs. at Plouffe Park, R.C.O.C. Depot, OTTAWA, ONT. Defence Constr. Ltd., 441 Queens Quay W., Toronto, 2B, Ont. Bids Sept. 18. CD 9/12.

Gorn & Sobel Realty Co., c/o Kent Steel Co., Trethewey Dr. and Jane St., Toronto, Ont. Own Forces, Approx. $85,000, 1 story, 85x97 ft., brick, steel, masonry. Block FACTORY, Stewart Smith Dr. and Tedder St., TORONTO, ONT. A. Tobias, 269 College St., Toronto, Ont., engr.

D'Amours & Frere Ltd., 2633 Bourbonniere Ave., Montreal, Que., LB, $361,000, St. Albert le Gramd SCHOOL Jeanne d'Arc St.; LB, $335,000, Barthelemy-Vimont SCHOOL, St. Roch St. between Bloomfield and De l'Epee Aves., MONTREAL, QUE. Catholic School Comn., 117 W. St. Catherine St. Montreal, Que. Bids Oct. 16. CD 9/27.

PROPOSED PROJECTS

WATER SUPPLY

Calif., San Clemente—City, 408 N. El Camino Real rehabilitate entire water system, $400,000. Currie Eng. Co., Anderson Bldg., San Bernardino, consult. engrs. Wm. A. Ayer, c/o owner, engr.

Idaho, Lewiston—City, City Hall, bond election Nov. 28, pumping plant expansion, $250,000; supply lines etc. $350,000. John W. Cunningham & Assocs., Spalding Bldg., Portland, Ore., consult. engrs. W. P. Hughes, city engr. CD 3/27.

N. C., Haw River—Haw River Sanitary Dist., Haw River, voted bonds, Oct. 17, water sys. $210,000. CD 4/6.

▲ O., Toledo—City, B. R. MacRitchie, Service Dir., City Hall, install 72 in. water main crossing beneath Maumee River, connecting 72 in. mains on west side and east side of Collins Park pumping station, $2,500,000; imprv. water distr. sys., $7,500,000. Paul Kiel & Wm. Jones, c/o owner, water dpt. engrs. CD 10/8.

Tex., Brownwood—City, watermain for Early Community, $50,000; 1 m. g. steel storage tank, for Early Community area, $120,000.

Tex., Corpus Christi—Town, medium water retention dam on Nueces River to provide increased water supply, $750,000; drilling, developing 5 or 6 water supply wells, near Lake Mathis, $200,000 (under direction, Lower Nueces River Valley Assn.) R. L. Otto, city engr. CD 12/3/48.

▲ Tex., El Paso—City, defeated bonds, WW sys. rehabilitation $1,500,000; reservoir, $2,000,000, Ashley Classen, 504 N. Kansas St., consult. engr.; pipe mains and laterals, $2,000,000; general expansion WW sys. $3,500,000.

Tex., Harlingen—City, voted bonds, Proj. 1, water supply well, $40,000; Proj. 2, c.i. and vitr. water mains, $125,000; Proj. 3, water distr. lines, $175,000; Proj. 4, steel tank and tower, $75,000; Proj. 5, rehabilitation existing water sys., $160,000. CD 10/10.

Tex., Kilgore—City, voted bonds Oct. 8, 6 water supply wells, $210,000; water distr. lines, $200,000; steel elevated storage tank, $150,000; water mains, $315,000.

Tex., Mission—Hidalgo County Water Dist. 7, Mission, voted bonds, rehabilitation and expansion irrigation project. $575,000. CD 10/1.

▲ Tex., Palestine—City, dam on Neches River to serve as a domestic water supply. $1,500,000. CD 5/11.

SEWERS, WASTE DISPOSAL

Calif., Los Angeles—City, City Hall, sanitary sewers in Athens Ave. and Vermont Ave. Sewer Dist., Athens, $303,344. Lloyd Aldrich, c/o owner, engr.

▲ Colo., Denver—City and Denver Co., City and County Bldg., Valverde Storm Sewer Dist. constr. storm sewers and appurtenances, $1,080,800. Terry Owens, City and County Bldg., city engr.

Ind., Bloomington—Bd. P. Wks., Helen Zell, City Hall, sewers in 14, 17, Fess and Faculty Sts., $418,380. R. J. Buck, City Hall, city engr. CD 5/8/45.

Ind., Speedway—Allison Div., General Motors Corp., Speedway, waste disposal plant, $200,000. Couch & Kulin, 230 E. Onio St., Indianapolis, Zone 4, consult. engrs.

Mass., Woburn—City, Pub. Wks. Dpt., sewerage sys., Harrison Ave. and Ellis St., northerly along side B. & M. R.R. $170,000. Edouard N. Dube, 120 Tremont St., Boston, consult. engr. CD 10/11.

N. H., Concord—City, Woodbury Brackett, mgr., City Hall, sewers first sect. $300,000. Charles T. Main, Inc., 80 Federal St., Boston, Mass., consult. engr. CD 1/10/45.

N. C., Haw River—Haw River Sanitary Dist., Haw River, voted bonds Oct. 17, sewerage sys. and treatment plant, $158,000. CD 4/6.

▲ O., Marietta—City, Joe G. Hartline, mayor, sewage disposal plant and revamping sewerage sys. $1,900,000.

▲ O., Painesville—City, Paul D. Cook, mgr., sewage disposal plant and interceptor sewers and other lines, $1,000,000. CD 11/22/48.

Pa., Springdale—Joint Boro Springdale and Harmar Twps., Springdale, sewage disposal plant, sewage disposal and interceptor sewers, $150,000. Chester Engineers, 210 E. Park Way, Pittsburgh, engrs. CD 11/1/45.

R. I., Cranston—City, Pub. Wks. Dpt., City Hall, incinerator, $250,000. CD 10/28/43.

R. I., East Providence—Town, Sewer Comn., 186 Taunton Ave., 2 ejector stations and gravity force main-stations, Merrit Rd. and Warren Ave., gravity force main approx. 15,000 ft. from new Watchemoket Cove to Fonham Terrace Treatment plant. $340,000.

▲ R. I., Woonsocket—City, Pub. Wks. Dpt., City Hall, sewage disposal plant addn. $1,150,000. Phillip B. Streander, 683 Atlantic Ave., Boston, Mass., consult. engr. CD 2/8/45.

▲ Tenn., Chatanooga—City, sanitary sewerage sys. in East Ridge, $1,700,000. Betts Eng. Co., 514 Lookout St., and Schmidt Eng. Co., 817 Broad St., consult. engrs. CD 10/17/49.

▲ Tex., El Paso—City, defeated bonds, sanitary sewers $950,000; storm sewers, $550,000; sewage disposal plant, $500,000.

Tex., Houston—Harris County Water Control & Imprvt. Dist. 35, Court House, sanitary sewer collection lines, $75,000; sewage disposal plant, $70,000.

Tex., Kilgore—Town, voted bonds Oct. 18, sanitary sewer collection lines, $80,000; sewage disposal plant, $75,000; storm sewers, $70,000.

W. Va., Williamson—City, sewage disposal plant. $200,000.

BRIDGES

▲ TENNESSEE—State Hy. Dpt., Nashville.

Hamilton Co.—bridge over Tennessee River at Chattanooga. $5,000,000. A. F. Hedman & Assoc., Chattanooga Bank Bldg., Chattancoga, consult. engrs. CD 7/12.

STREETS AND ROADS

Colo., Denver—City and Denver Co. City and County Bldg., 32nd Parkway to full width incl. median areas, paving roadway areas with c. conc.; constr. concrete curbs and gutters on roadway areas, $452,000. Terry Owens, city engr.

▲ Neb., Omaha—City, City Hall, 18 and Farnam Sts., Southwest Hy. $1,000,000. The Harland Bartholomew & Assoc., 317 N. 11 St., St. Louis, Mo., consult. engrs. E. W. Woodbridge, city engr. CD 4/12.

Okla., Lawton—City, c. conc. paving 54,000 sq. yd. residence streets. $260,000. Charles Gallager, city engr.

▲ TENNESSEE—State Hy. Dpt., Nashville,

Montgomery Co.—four-lane highway on section of 41-A from New Providence through Clarksville, $2,500,000.

Tex., Kilgore—City, voted bonds Oct. 18, street constr. and hard paving, $100,000.

Tex., Lockhart—Caldwell Co., Lockhart, rebuilding Martindale-Lockhart Hy. from Mayes Co. line, 17 mi. $175,000; reconstruct 12 mi. road, Stairton to Joliet, 135,000; 13 mi. road reconstruction between Dale and Lytton Springs, $99,000; reconstruct 12 mi. McMahon Rd. McMahon to Lockhart, $125,000.

Tex., Midland—Midland Co., Court House, construct trunk road in Tex-Harvey and Driver Fields area, $175,000; hard paved road from U. S. Hy. 80 at Warfield to connect with proposed road from Pegasus oil field in Ector Co. $125,000; 3 mi. hard-type road paving, northeast Midland Co. connecting with Martin county road, $65,000. 10 mi. hard type paving, Precinct 2, incl. paving from south of Greenwood to Garden City Hy. $135,000. CD 5/24.

Wash., Wenatchee—Chelan Co., Courthouse, new highway from Wenatchee to Malaga, $45,000; Malaga-Rock Island, $65,000. D. B. West, co. engr. CD 4/13.

▲ Alta., Edmonton—City, Municipal Bldg., sidewalks, paving, grading and other road work, $3,000,000.

AIRPORTS

▲† Ia., Sioux City—PLANE BASE—U. S. Eng., 1709 Jackson St., Omaha, Neb., fighter plane base. $1,700,000.

† N. M., Albuquerque—SHOP and FUELING SYS., etc. —U. S. Eng., Box 1538, Albuquerque, plans by Carroll & Daeuble, 1001 E. Yandell Blvd., El Paso, Tex., shop expansion, $250,000; fueling sys., $225,000; warehousing or storage, $400,000 at Kirtland Air Force Base. CD 8/28.

▲† N. M. Clovis—AIR BASE BLDGS.—U. S. Eng., Box 1538, Albuquerque, plans by Schaefer & Merrell, 111 E. 14 St. Clovis, shops, $250,000; barracks or housing, $1,000,000; messes, $450,000; misc. cons. $750,000; storage or warehousing, $1,500,000 for Clovis Air Force Base.

▲† O., Akron—TRAINING CENTER—Dpt. Air Force, The Pentagon, Wash. 25, D. C., air force reserve training center on 17-acre tract at Akron-Canton Airport for approx. 2,000 men; hangars, barracks, operational headquarters and parking facilities. $1,558,000.

▲† Tex., Beeville—RUNWAY, etc.—Dpt. Navy, Kingsville, 8,000 ft. concrete runway, 200 ft. wide, $1,550,000; fueling sys. $150,000; area paving, $300,000, at Chase Field. CD 2/1/51.

† Tex., Ellington Field—TECHNICAL — ACADEMIC TRAINING BLDG.—U. S. Eng., 606 Santa Fe Bldg., Galveston, plans by Ben Milam, Guaranty Bldg., Galveston, 30,800 sq. ft., technical-academic training bldg., concrete floors and slab fdn. 17 mi. southeast of Houston, $325,000.

▲† Tex., El Paso—STORAGE WAREHOUSING—U. S. Eng., Box 1538, Albuquerque, N. M., plans by Davis & Foster, Mills Bldg., storage warehousing and allied facilities, Biggs Air Force Base. $2,500,000. CD 10/19.

LATIN AMERICA

▲ B. W. I., Jamaica, Kingston—Govt. of Jamaica, Kingston, re-housing as aftermath of the hurricane damage. $10,400,000. Bd. Wks., Kingston, engr.

▲ Mexico, Azcapotzalco—Petroleos Mexicanos, Juarez, 104, Mexico City plans base department bldgs., $5,300,000; desulphurizing plant, $693,000. Jose Colomo, c/o owner, engr. CD 1/20/44.

Mexico, Mexico City—Dpt. P. Wks., Fed. Dist. Mexico, Mexico City, plans subway north south to San Angel and Villa Obregon and north to Guadalupe sect. on Lerado Hy. also across town subway.

PUBLIC BUILDINGS

† Ala., Anniston—WAREHOUSES—U. S. Eng., P.O. Box 1169, Mobile, Zone 7, plans by Sherlock, Smith & Adams, 301 Washington Ave., Montgomery, 4 warehouses at Anniston Ordnance Depot, Approx $750,000. CD 9/28.

Ark., Jacksonville—SCHOOL—Jacksonville School Bd. Jacksonville, Jacksonville High School, $500,000.

Calif., Daly City — SCHOOLS — Jefferson Elementary School Dist., 244 Santa Barbara Ave., plans by Marion Ciampi, 425 Bush St., San Francisco, Garden Village Upper Grade School, $548,000; school, on Market St. site, $315,000. CD 11/17/49.

Calif., Los Angeles—RESEARCH—Bd. Regents, University of California, 451Hilgard Ave., plans by Welton Becket & Assoc., 5657 Wilshire Blvd., 4 story, rein.-con. cancer research addn. to medical college. $700,000 CD 8/24/44.

▲ Calif., San Francisco—SCHOOLS—City, P. Wks. Dpt., City Hall, plans by Clarence Mayhew, 251 Post St., Lakeside School, $800,000; plans by Marlo Ciampi, 425 Bush St., San Miguel School addns., San Jose Ave. and Seneca St., $750,000; plans by Harry A. Thomsen, Jr. & Alec L. Wilson, 315 Montgomery St., Junior High School in Sunset Community Center, $2,800,000. CD 2/ 11/49.

Colo., Fort Collins—SCHOOL—School District 5, Fort Collins, high school addn., incl. gymnasium music department and 4 classrooms. $600,000.

Del., Holly Oak (Wilmington, P.O.)—SCHOOL—Mount Pleasant Special School Dist., Duncan Rd. School, Wilmington, school, $966,400.

Del., Newport—SCHOOLS—Newport School Dist., Newport, Newport Colored School, $300,000; elementary school. $475,000. CD 7/28/50.

▲ Fla., Gainesville—SCHOOLS—Alachua Co. Bd. P. Instruction, Gainesville, Lincoln High School $1,387,000; North Gainesville High School, $1,257,000; West Gainesville Negro High School, $661,000. CD 8/4/50.

▲ Ga., Augusta—OFFICE—City and Richmond Co., City Hall, city-county office bldg., $3,000,000. CD 7/31/45.

▲ Kan., Topeka—MORGAN HALL—Bd. Regents Washburn Municipal of Topeka, 17 and College Sts., plans by T. W. Williamson, National Bank of Topeka Bldg., and Y. H. Loebsack, 1243 Topeka Blvd., constr. Margaret Mulvane Morgan Hall, $1,000,000. CD 12/15/48.

▲ Ky., Lakeland—HOSPITAL—State, New State Office Bldg., Frankfort, plants by D. X. Murphy & Bros., Louisville Trust Bldg., Louisville, Central State Hospital for the Insane addn. $3,000,000. CD 10/30/50.

▲ La., Opelousas—SCHOOL—St. Landry Parish School Bd., $2,000,000 bond election Nov. 20, school imprvs. in Dist. 1. CD 1/7/46.

▲ Md., Aberdeen Proving Grounds—SCHOOL SHOP—U. S. Eng., 24 and Maryland Ave., Baltimore, plans by Mills, Petticord & Mills, engrs. and archts., 3308 14 St. N.W., Wash., D. C., 6 concrete block permanent school shop bldgs., $1,260,000. J. L. Faisant & Assoc., 21 W. 25 St., Baltimore, assoc. engrs. CD 11/17/50.

Md., Mount Wilson — HOUSING FACILITIES — State, Dpt. P. Imprvts., 506 Park Ave., Baltimore, Zone 1, plans by Finney, Wolcott & Assoc., 320 W. 24 St., Baltimore, four 1 and 2 story, bsmnt. residences for doctors, 4 apartment group bldgs., dormitory for staff, Mt. Wilson State Hospital, $500,000. Nathan J. Smith, c/o owner, ch. engr. CD 12/28/49.

▲ Mass., Boston—HOUSING—Boston Housing Auth., 230 Congress St., revised plans by August Schumacher, 102 Mt. Auburn St., Cambridge, 172 housing units, South St., $2,225,000; revised plans by Robert W. Blaisdell, 71 Proctor St., Roxbury, 115 housing units, Forest Hills Arborway, Lennoco Rd., $1,210,000, Edouard N. Dube, 120 Tremont St., mech. engr. CD 3/14/51.

▲ Mass., Boston—HOUSING—Boston Housing Auth., 230 Congress St., revised plans by Samuel Glaser Assoc., 105 Newbury St., 259 housing units, Wood Estate, Morton St., Proj. 200-10, $2,850,000. Albert Goldberg, 739 Boylston St., consult. engr. CD 10/12/50.

Mass., Newton Highlands (Br. Boston)—SCHOOL—City of Newton, School Dpt., 40 Elm Rd., plans by Cram &

(Continued on page 78)

CASE HISTORY OF A SUCCESSFUL TUNNEL JOB

FROM THE EIMCO FILE T1005A

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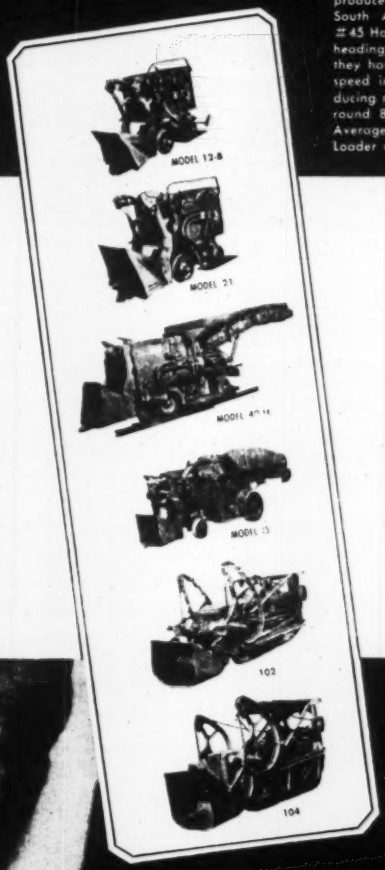

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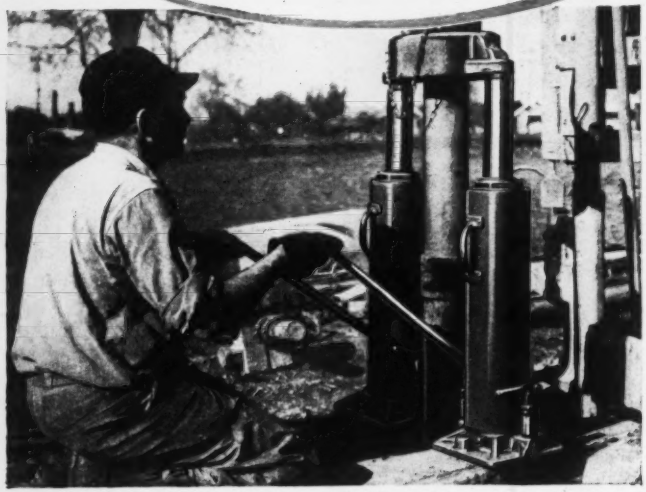

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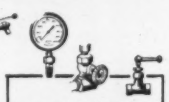
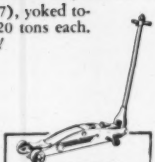


HYDRAULIC GAUGES—VALVES—FITTINGS



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(Continued from page 76)

Ferguson, 248 Boylston St., Boston, 2 story, brick, steel, concrete school, $600,000.

Mass., Plymouth—SCHOOL—Town, School Dpt., Town Square, plans by Walter M. Gaffney, 43 Potter St., Hyannis, 1 story, 35x295 ft., brick veneer, wood frame school, $300,000. (Correction—cost). CD 10/12.

Mass., Saugus—SCHOOL—Town, Norman G. Young, mgr., Town Hall, high school, $500,000.

▲ Mass., Swampscott—SCHOOLS—Town, School Dpt., F. L. Mansur, supt., Redington St., high school, $2,500,000; Stanley Elementary School addn., $350,000.

Mich., Camden — SCHOOL — Camden Village Frontier School Dist., voted $475,000 bonds, brick, masonry school. CD 9/27.

▲ Mich., Detroit—HOSPITAL—State, A. N. Langlus, dir. State Bldg. Dpt., Lansing, plans by O'Dell, Hewlett & Luckenbach, 2300 Dime Bldg., brick, steel, concrete Children's Hospital. $2,000,000.

▲ Mich., Northville—HOSPITAL—State, A. N. Langlus, dir. State Bldg. Dpt., plans by O'Dell, Hewlett & Luckenbach, 2300 Dime Bldg., Detroit, 2 story, bsmnt., concrete special treatment unit, $1,200,000; 2 story, brick, concrete industrial patients bldg., $1,000,000; 1 story, brick, masonry laundry bldg., $400,000, Northville State Hospital. CD 1/16/51.

▲ Miss., Meridian—PLANT—City, plans by Morris L. McNair, Rosenbaum Bldg., Krouse & Yarbrough, WMOX Bldg. and L. L. Brasfield, Kidder Bldg., plant for Textron, Inc., $5,000,000, Bill Archer, WMOX Bldg., engr. CD 10/10.

Miss., Poplarville—FACTORY—Pearl River Co., plans by Landry & Matthes, 218 W. Pine St., Hattiesburg, factory, $450,000.

Mont., Missoula—CLASSROOM BLDG.—State, Bd. Educ., Helena, plans by J. G. Link & Sons, Butte, classroom bldg. at University of Montana, $550,000. CD 3/22.

▲ N. J., Trenton—SCHOOL—Hamilton Twp., Bd. Educ., 2069 Greenwood Ave., plans by Herman C. Mack, 2428 Liberty St., Junior High School. $1,500,000. CD 10/26/50.

▲ Pa., Harrisburg—WAREHOUSE, etc.—General State Auth., 18 and Herr Sts., plans by C. J. Lappley, Riverview Manor Apartments, Harrisburg, 1 story, 250x480 ft., concrete block, steel warehouse and garage bldg. for State Capitol Storage and Automotive Services. $1,000,000. A. F. Jones, c/o owner, ch. engr. CD 5/8/46.

▲† Pa., Letterkenny—STORAGE MAGAZINES, etc.—U. S. Eng., 24 St. and Maryland Ave., Baltimore, Md., plans by Harris Dechant & Assoc., engrs.-archts., 123 S. Broad St., Phila. storage magazines; admin. bldg. addn.; general supply warehouse. $11,000,000. CD 1/18/51.

Pa., Limesville—HIGH SCHOOL—Limesville, Conneaut, Summit Joint School Dist., Limesville, plans by W. G. Eckles & Son, Lawrence Savings & Trust Bldg., New Castle, 2 story brick, Junior High School. $500,000.

▲ Pa., New Kensington—HOUSING—Westmoreland Co. Housing Auth., Greensburg, plans by Sorber & Hoone, 1st. Natl. Bank, Greensburg, 150 family housing, $1,500,000.

▲ Pa., Phila.—SCHOOLS—Bd. Educ., 21 and Winter Sts., school, Ivy Hill sect. of Mt. Airy, Approx. $1,000,000; school, Rhawn and Fairfield Sts., Approx. $1,000,000. CD 2/8/45.

† R. I., Newport—BRIG—Pub. Wks. Office, 1st Naval Dist., 495 Summer St., Boston, Mass., brig at Naval Training Station. $412,500.

† R. I., Newport—EVALUATOR—Pub. Wks. Office, 1st. Naval Dist., 495 Summer St., Boston, Mass., electronic command evaluator bldg. $400,000.

Tex., Mexia—HOME—Bd. for Texas State Hospitals & Special Schools, 45 and Lamar Sts., Austin, plans by Walter C. Moore, superv. archt., c/o owner, 300-bed home for senile patients. $800,000. CD 12/9/48.

Tex., Pine Tree—SCHOOL—Pine Tree Independent School Dist., James Ogg, supt, Box 65, Greggton, plans by Preston M. Geren, 905 N. P. Anderson Bldg., Fort Worth, school. $400,000.

Wash., Aberdeen—HOUSING—Grays Harbor Co. Housing Auth., Aberdeen, plans by C. W. George, Aberdeen, 100 housing units, $800,000. CD 9/24.

Wash., Aberdeen—COLLEGE BUILDINGS—School Bd., Aberdeen, plans by Weatherway & Street, Aberdeen, buildings for Junior College, $400,000. CD 7/22/45.

▲ Wash., Bremerton—SCIENCE—School Dist. 100-C, Bremerton, science bldg. initial unit of Olympic Junior College, $750,000, junior high school east of Westpark, $1,320,000.

Wash., Chehalis—GYMNASIUM, etc.—School Dist. 302 Chehalis, bond election Nov. 8, gymnasium and music bldg. for high school, $435,000. CD 10/16.

W. Va., Morgantown—MEDICAL—W. Va. University, Morgantown, plans by Schmidt, Garden & Erikson, 104 S. Michigan Ave., Chicago, Ill., medical bldg. Approx. $500,000.

Wis., La Crosse—AUDITORIUM—City plans by Ellerbe & Co., E. 505 First National Bank Bldg., St. Paul, Minn. and F. J. Fuchs, La Crosse, assoc. archt., memorial auditorium, $650,000.

Alaska, Anchorage—SCHOOL—Independent School Dist., Anchorage, grade school. $700,000. CD 5/11/51.

Ont., St. Catherines—SCHOOL—St. Catherines Bd. Educ., 15 Welland Ave., school Lake St. $620,000. CD 2/24/50.

▲ Ont., Sarnia—HOSPITAL—City, City Hall, Sarnia General Hospital addn. $2,400,000. CD 2/19/47.

Que., Hull—SCHOOL—Protestant School Bd., Hull, plans by L. Sarra-Bournet, 187 Main St., Hull, Que., school; Approx. $500,000. CD 5/1.

▲ Que., Montreal—HOSPITAL—Notre Dame Hospital, 1560 Sherbrooke St. E., plans by Crevier Belanger, Semieux & Mercier, 3276 Notre Dame de Grace Ave., Montreal, Que., hospital addn (Pavilion); Approx. $5,500,000. CD 2/23.

▲ Que., St. Joseph D'Alma—HOSPITAL—Misericorde Hospital, Roberval, plans by P. Rinfret, 400 Charest Blvd., Quebec City, 4 story, bsmnt. 50x135 ft., with 54x80 ft., wing, rein.-con., brick hospital. $1,500,000.

▲ Sask., Yorkton—HOSPITAL—Yorkton General Hospital, Yorkton, 175-bed Yorkton Hospital. $1,775,000. CD 7/20/45.

COMMERCIAL BUILDINGS

▲ Calif., Los Angeles—DWELLINGS—Spiros G. Pouty, 5845½ N. Hollywood Way, Burbank, plans by Edward H. Fickett, 5657 Wilshire Blvd., 61 frame, stucco dwellings, Overland and Exposition Blvds., $1,000,000.

Calif., Placerville—DRIVE-IN RESTAURANT—Miles Real Estate Agency, 136 Main St., drive-in restaurant, town and country type shopping center and motel and service station, $400,000.

Ia., Sioux City—BUILDING—Morningside College, Morningside Ave., new building. $500,000.

▲ Mass., Braintree—HOMES—Prosperity Development Co., c/o Atty Robert Brown, 1101 Industrial Trust Bldg., Providence, R. I., 1,500 homes from Holbrook Line to Rte. 128, 10,000 ft. lots, Braintree Highlands $1,500,000.

Mich., Detroit—CLASSROOM—Lawrence Institute of Technology, 15100 Woodward St., 60,000 sq. ft. brick, masonry classroom bldg., site at State Fair Grounds, Woodward Ave. $750,000.

▲ Mo., Ladue (St. Louis 24, P.O.)—SCHOOL—St. Louis Country Day School, Robert N. Cunningham, headmaster, Brown Rd. north of Natural Bridge Rd., Berkeley City, school, residences, etc. on 36¼ acre tract north of Ladue Rd. between Warson Rd. and Lindbergh Blvd. $2,000,000.

▲ N. J., Hamilton Twp.—HOUSES—Ardin Real Estate Co., 101 N. 7 St., Camden, 100 one and half story, 6 room homes on 25 acre tract, Independent Ave., Baylor Circle, Baylor Dr. and S. Broad St. $1,000,000.

Pa., Erie—DORMITORY—Gannon College, 109 W. 6 St., plans by John S. Gifford & John Sunda, 119 W. 8 St., 3 story, bsmnt., 43x217 ft. brick dormitory. $400,000.

Pa., Morrisville—TELEPHONE EXCHANGE—Bell Telephone Co. of Pennsylvania, 1835 Arch St., Phila., central telephone exchange, Newportville Rd., handling telephone service in Fairless Hills and Levittown housing developments. $400,000.

Pa., Pittsburgh—DEPARTMENT STORE etc.—Kaufmanns Department Stores, Inc., 5 and Smithfield Sts., plans by Alfred Bitaro, c/o owner, department store and office alterations from office bldg. $500,000.

Pa., Uniontown—STORE and OFFICE—Marmins Constr. Co., 1848 Center Ave., Pittsburgh, 4 story, 75x125 ft. brick, concrete store and office. $500,000.

S. C., Columbia—HOSPITAL—Baptist Hospital, 1519 Marion St., hospital addn. $900,000.

Tex., Dallas—SYNAGOGUE—Congregation Shearith Israel, Dr. Israel H. Weisfeld, 1325 Park St., plans by George L. Dahl, 2101 N. St. Paul St., synagogue, Walnut Hill Lane and Douglas Ave. $750,000.

Tex., Fort Worth—RESEARCH CENTER—Texas Christian University School of Business Dpt., T. C. U. Campus, Fort Worth, 3 story masonry study and research center. $400,000.

▲ Tex., Houston—SHOPPING CENTER, etc.—Oak Meadows addl. D. D. Hutchinson, pres., 6319 Long Dr., plans by Lloyd & Morgan, 4605 Montrose Blvd., addnl. shopping center, $1,000,000; Proj. 1, 50 dwellings, $400,000; Proj. 2, 40 dwellings, $345,000; Proj. 3, 55 dwellings, $465,000, off Galveston Rd.

▲ Tex., Houston—SHOPPING CENTER—Oak Meadows Corp., 5225 Allendale St., plans by Lloyd & Morgan, 4605 Montrose Blvd. shopping center, $1,000,000.

Tex., Irving—DWELLINGS—Mayflower Investment Co., c/o Carr P. Collins, 912 Commerce St., Dallas, plans by The Plan Shoppe, 8820 Garland Rd., Dallas, Sect. 1, 55 dwellings, west of city, $385,000; Sect. 2, 45 dwellings, west of city, $315,000; Sect. 3, 48 dwellings, west of city, $336,000; Sect. 4, 40 dwellings, west of city, $300,000. CD 10/8.

Tex., Jacksonville—HOSPITAL—Nan Travis Memorial Hospital, Jacksonville, revised plans by Milton McGinty, 2425 Ralph St., Houston, 3 story, 60-bed masonry type, hospital, concrete pier and beam fdns., $600,000. CD 8/16, under Bids Asked.

▲ Ont., London—STORE—Simpsons London Ltd., 140 Dundas St., 5 story, brick, department store addn. $2,000,000. F. S. Corley, c/o Robt. Simpson Co. Ltd., 176 Yonge St., Toronto, engr.

INDUSTRIAL BUILDINGS

Ill., Cicero—TERMINAL—Interstate Motor Truck Terminal Motor Truck Terminals, Cicero, motor truck terminal, $700,000.

▲ Ill., Joliet — FACTORY EXPANSION — Caterpillar Corp., Route 6 at Des Plaines River, Joliet, Ill., 250,000 sq. ft. factory expansion, $4,000,000.

Mont., Billings—GRAIN ELEVATOR—Occident Elevator Co., Billings, grain elevator, $300,000.

▲ Neb., Lincoln—PLANT—General Electric Co., Electronics Div., c/o W. M. Barker, Seventh North and Hopkins Rd., Syracuse, N. Y., plant.

▲ Tex., Arlington—AIRPLANE PLANT—General Motors Corp., General Motors Bldg., Detroit, Mich., airplane plant, Argonaut Realty Div. General Motors, Research Bldg., Detroit, Mich., consult. engr.

Tex., Austin—PLANT—The American Statesman, 200 W. 7 St., plans by Jessen, Jessen, Millhouse & Greeven, 2816 N. Guadalupe St., masonry newspaper plant, $375,000.

Tex., Dallas—PLANT—Ruberoid Co., Harry Hines and Singleton Blvds., plant unit for wood chipping and defibrating, $375,000.

▲ Tex., El Paso—PRODUCTS STORAGE FARM, etc.—Standard Oil Co. of Texas, Womble Blvd. products storage farm, $500,000; construct alkylation refinery unit, $750,000; gas plant and treating units $1,100,000; construct synthetic distillation refinery unit, $1,000,000; reduced crude vacuum unit refinery, $950,000.

▲ Tex., Fort Worth—PLANT—Marine Aircraft Corp., c/o Eagle Mountain, Fort Worth, aircraft mfg. plant, northeast of here. $3,500,000.

▲ Tex., Gregory—PLANT—Reynolds Metal Co., 3 and Grace Sts., Richmond, Va., aluminum plant, $45,000,000. J. Gordon Turnbull, Inc., 2630 Chester St., Cleveland, O., consult. engr.

▲ Tex., Houston—REFINERY—Pure Oil Co., 1st. Natl. Bank Bldg. desalting refinery unit, $12,500,000; catalytic cracking refinery unit, $10,000,000. CD 3/16.

▲ Tex., Houston—COKE OVENS—Sheffield Steel Corp., Industrial Rd., unit of 15 chemical-recover coke ovens. $3,000,000. Koppers Co., Inc., M & M Bldg., consult. engr. CD 2/13.

▲ Tex., Port Arthur—REFINERY, etc.—Pure Oil Co., 35 E. Wacker Dr., Chicago, Ill., refinery unit cooling towers, $400,000; catalytic polymerization refinery unit, $1,000,000; alkylation unit enlargement, $750,000; addnl. fluid catalytic cracking unit, $850,000.

▲ Utah, Salt Lake City—REPAIR SHOP—Union Pacific R. R., W. C. Perkins, ch. engr., 1416 Dodge St., Omaha, Neb., diesel repair shop. $5,600,000.

▲ Va., Danville—STEAM GENERATING STATION—Dan River Mills, Danville, steam generating station addn. $2,750,000.

▲ Va., Norfolk—CLASSIFICATION—Norfolk & Western Ry. Co., A. B. Stone, ch. engr., General Office Bldg., Roanoke, new classification at Lamberts Point, $1,350,000.

▲ Wash., Bellingham—PAPER MILL—Scott Paper Co., Bellingham, paper mill, $12,000,000.

W. Va., Glendale—WAREHOUSE—Louis Marx & Co., Glendale, plans by Gilmore Carmichael Olson Co., 1873 E. 55 St., Cleveland, O., 1 story, brick, concrete warehouse, $600,000.

Alta., Edmonton—PLANT—Great Western Garment Co. Ltd., 97 St. and 103 Ave., plant on new 4.69 acre site on 120 St. $750,000

▲ Man., Winnipeg—DEPOT, etc.—General Motors Products of Canada, Ltd., 270 Assiniboine Ave., parts depot and assembly plant, on 100-acre site. Est. $2,500,000.

▲ N. S. Canso—PLANT—British Columbia Packers Ltd., Campbell St., Vancouver, fish plant expansion program, $1,500,000.

▲ Que., Asbestos—EXPANSION—Asbestos Corp., Asbestos, Que. expansion and imprvt. program, $14,000,000. CD 6/12/47.

▲ Que., Sorel—MINES—Quebec Titanium Co. Ltd., Sorel (subsidiary of Kennesott Copper Corp., A. Gray pres.), initial investment in Titanium mines, at Lake Allard, $40,000,000.

UNCLASSIFIED

Calif., Lynwood—SWIMMING POOL—City, 11331 Plaza St., swimming pool in Lynwood Memorial Park, $350,000. Ralph S. Brooks, Central Bldg., Monrovia, consult. engr. CD 4/11/46.

Minnesota—TELEPHONE LINE—Hector Telephone Co., Hector, rebuild 98 mi. telephone line to serve Renville, Meeker and Kandiyohi Counties, $201,000.

▲ N. C., Charlotte—SPORTS COLISEUM, etc.—City, City Hall, 600 E. Trade St., plans by A. G. Odell, Jr., 109 W. 3 St., sports coliseum—auditorium, Independence Blvd. $3,000,000.

South Dakota—RURAL DISTRIBUTION LINES—Central Electric Co-operative Assn., Blunt, S. D., 132 mi. rural distr. lines and sys. imprvs., Hughes Co. $320,000. Scott Eng. Co., Watertown, consult. engr. CD 7/14/50.

▲ Texas, Arkansas, Mississippi, Tennessee, Kentucky and West Virginia—GAS PIPE LINE CARRIER—Texas-Ohio Gas Co., City Natl. Bank Bldg., Houston, Tex., 1,350 mi. natural gas pipe line carrier from near McAllen, Tex., to Spencer, W. Va. $169,989,683; construct series booster stations incl. 350 line between Texas and West Virginia, $15,000,000.

Texas—TELEPHONE LINES—Poka-Lambro Rural Telephone Co-operative, Tahoka, expansion rural pole telephone lines, Lynn Co. $550,000.

Texas — RADIO STATIONS — Service Pipe Line Co., Ranger, base radio stations at Ranger, Albany and Woodson $90,000 each.

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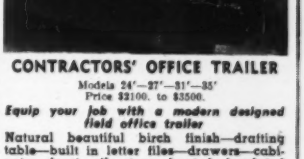

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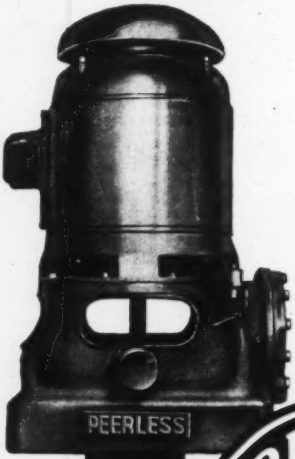

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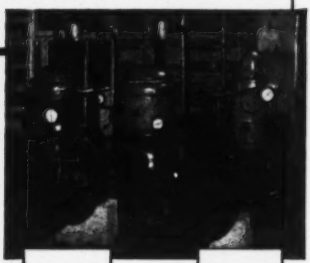

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CONSTRUCTION REPORTS-Second Section

NEW ENGLAND

BIDS ASKED—HEAVY CONSTRUCTION
STATE HIGHWAY LETTINGS
BRIDGES
November 13 Massachusetts
STREETS AND ROADS
November 13 Massachusetts

BIDS ASKED—BUILDINGS

▲ Mass., Cambridge—HOUSING—B.A. 11/15—Cambridge Housing Auth., 51 Inman St., John Corcoran Housing, Proj. Mass. 3-2. $3,500,000. CD 10/17, under LB.

HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

▲ MASSACHUSETTS—Commonwealth of Mass., Dpt. P. Wks., 100 Nashua St., Boston,
Bayer & Mingolia Constr. Co., Inc., 90 Lincoln St., Worcester, Mass. CA $2,279,396. relocating 15,970 ft. Rte. 2, incl. 6 bridges, Lancaster and Harvard. CD 10/29, under LB.

HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

▲ State, Dpt. P. Health, 512 State House Boston, Mass., rejected bids Aug. 15. H-203, Contr. 1, new out patient X-Ray LABORATORY, Pondville State Hospital, NORFOLK, MASS. LB $1,086,644. CD 8/21, under LB.

▲ A. F. Peaslee Inc., 15 Lewis St., Hartford, Conn., CA, $1,104,777, Junior Senior High SCHOOL, CHESHIRE, CONN. Town, Cheshire, Conn. Bids Sept. 18. CD 10/3, under LB.

MIDDLE ATLANTIC

BIDS ASKED—HEAVY CONSTRUCTION
STATE HIGHWAY LETTINGS
BRIDGES
November 15 New Jersey
STREETS AND ROADS
November 14 New York November 15 New Jersey
November 20 Maryland

BIDS ASKED—BUILDINGS

N. Y., Brooklyn—SCHOOL—B.A. 11/13—Supt. School Bldgs., Design and Constr., 49 Flatbush Ave. exten. Zone 1, general constr.; plumbing and drainage; heating and ventilating; electrical and lighting fixtures for P. S. 152 addn., Glenwood Rd. and E. 23 St. Plans deposit $15 general constr., $7 each others. CD 5/18.

N. Y., Brooklyn—SCHOOL—B.A. 11/14—Supt. School Bldgs., Design and Constr., 49 Flatbush Ave. exten., Zone 1, general constr. plumbing and drainage, heating and ventilating, electrical and lighting fixtures for P. S. 27 addn., Nelson and Hicks Sts. Plans deposit $15 general constr. $7 each others. CD 9/8/48.

▲ N. J., Union City—HOUSING—B.A. 11/15—Housing Authority of Union City, 3600 Bergenline Ave., housing, Project N. J. 2-7, 147 units, 39 St. west of Blvd. to Plank Rd. $1,400,000. CD 10/18/49.

HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

▲ NEW YORK—Bureau Contracts & Accounts, The Governor Alfred E. Smith State Office Bldg., Albany,
John C. Peterson Constr. Corp., 958 Church St. Baldwin, N. Y., LB. $818,362, construct 2.06 mi. Wantagh-Central Park County Highway, Nassau Co.;
N. R. Corbisello, Inc., 36 Tompkins St., Binghamton, N. Y., LB. $1,205,885, reconstruct 4.04 mi. Route 28, Delaware Co.;
Johns Bros. Constr. Co., Hall St., Binghamton, N. Y. LB $479,096, construct 6.19 mi. extens. of Route 10 between Speculator and Indian Lake, Hamilton Co. Bids Oct. 24. CD 10/12.

▲ NEW JERSEY—State Hy. Dpt., 1035 Parkway Ave., Trenton,
Villa Contg. Co., 233 North Avenue W., Westfield, N. J., CA, $1,446,831, constructing Sections 6J and 7D of Route 4 Parkway (bridges at Myrtle Avenue Lehigh Valley R R tracks and Staten Island Rapid Transit Railway tracks plus grading) Cranford Twp., Union Co. Bids Oct. 9, awarded Oct. 26. CD 10/12, under LB.

▲ N. A. K. Bugbee & Co., 54 Oakland St., Trenton, N. J. CA, $1,432,420, general contract sewage treatment plant;
Joseph Miele Constr. Co., C. Salvatore & Sons and Frank Bracatello, 90 Millburn Ave., South Orange, N. J., CA, $464,512, Sect. E, sewerage system;
Verona Constr. Co., Inc., 22 Cliff St., Verona, N. J., CA, $318,903, Sect. F, sewerage system;
Frank Nero & Son, Red Bank, N. J., CA, $341,448, Sect. F1, sewerage system; $546,850, Sect. G, sewerage system;
United Foundation Corp., Union, N. J., CA, $475,674, Sect. G-1, sewerage system;
DiMarco & Ciccone, Inc., 151 East Post Rd., White Plains, N. Y., CA, $686,683, Sects. H and H-1, sewerage system;
Berlanti Constr. Co., 15 Oakland Ave., Harrison, N. Y., CA, $927,442, Sect. I, sewerage system, TRENTON, N. J. Ewing-Lawrence Sewerage Auth., 156 W. State St., Trenton, N. J. Grand total, $5,193,933. Bids Aug. 20. CD 8/29, under LB.

BUILDINGS

LOW BIDS AND CONTRACTS

▲ Hempstead-Heath Homes, c/o Alwyn Cassens, archt., 145 S. Franklin Ave., Valley Stream, N. Y., Owner Builds. Approx. $1,200,000. 120 HOUSES, 25 acre site near Hempstead-Bethpage Turnpike, BETHPAGE, N. Y.

▲ Oak Manor Homes, Inc., c/o Benjamin R. Levinson, archt., 163-18 Jamaica Ave., Jamaica, N. Y. Owner Builds. Approx. $1,400,000. 68 one-family HOUSES, Thorn Hill Ave. between Marathon Parkway and Morenci Lane, DOUGLASTON, N. Y.

▲ Joseph Martin Homes, c/o Matern & York, archts., 90-04 161 St., Jamaica, N. Y., Owner Builds. Approx. $3,000,000. 200 one-family HOUSES, 40 acre site, Merrick Ave. and Wilson Rd., EAST MEADOW, N. Y.

▲ Midland Homes, c/o Alwyn Cassens, Jr., archt., 145 S. Franklin Ave., Valley Stream, N. Y. Owner Builds. Approx. $2,000,000. 185 HOUSES, Front and Pacific Sts., MASSAPEQUA PARK, N. Y.

▲ Burns & Roe, 233 Broadway, New York, N. Y., CA. Approx. $11,000,000. design and construct, 2nd unit 60,000 kw. GENERATOR at Danskammer Point Steam Station, 6 mi. north of NEWBURGH, N. Y. Central Hudson Gas & Electric Corp., South Ave., Poughkeepsie, N. Y.

▲ Turner Constr. Co., 1500 Walnut St., Phila., Pa., CA. $1,000,000, Mfg. PLANT addns., AVENEL, N. J. Philadelphia Quartz Co., Avenel, N. J.

▲ Nason & Cullen, 6522 Vine St., Phila., Pa., CA $2,010,200, est. $1,817,000, HOSPITAL and INTEGRATED MEDICAL CENTER, Route 30 near Flemington Fair Grounds, FLEMINGTON, N. J. Bd. Trustees Hunterdon County Medical Center, 1 Main St., Flemington, N. J. Bids Aug. 28, awarded Oct. 30. CD 9/12, under LB.

J. Tesler & Sons, 3702 Westfield Ave., Camden, N. J. Separate Contracts, $999,000. RESIDENTIAL DEVELOPMENT, Cedar Ave., MAPLE SHADE, N. J. Dante J. D'Anastasio, 1815 Federal St., Camden, N. J., archt.

▲ Turner Constr. Co., 1500 Walnut St., Phila., Pa., CA. $1,000,000. Mfg. PLANT addns., alterations, CHESTER, PA. Phila. Quartz Co., Public Ledger Bldg., Phila., Pa.

Walter Butler Constr. Co., Minnesota Bldg., Minneapolis, Minn. CA. Approx. $975,000. 2 T-shaped, brick wings, approx. 70x180 ft., HOSPITAL addn., NEW CASTLE, PA. New Castle Hospital, New Castle, Pa. CD 2/26.

† Hughes-Foulkrod Co., 1505 Race St., Phila., Pa., CA. $523,347. BOILER PLANT, site imprvs. at General Depot, Inv. 52-7, NEW CUMBERLAND, PA. U. S. Eng., 24 St. and Maryland Ave., Baltimore, Md., Bids Oct. 12. CD 10/19, under LB.

▲ Flower Constr. Co., 121 S. Broad St., Phila., Pa., Separate Contracts. Approx. $1,500,000. RESIDENTIAL DEVELOPMENT, Broad St. and Packer Ave., PHILA., PA. Lewis J. Cowan, 1505 Pine St., Phila., Pa., archt.

▲ Lorraine Park Co., 4900 Parrish St., Phila., Pa., Separate Contracts. Approx. $5,500,000. RESIDENTIAL DEVELOPMENT, Bustleton Ave. and TOMLINSON Rd., PHILA., PA.

Pittsburgh Industrial Eng. Co., 3939 Butler St., Pittsburgh, Pa., CA. Approx. $500,000. BULK PLANT, new and alteration, docks, tanks and sidings, BOILER PLANT, MISC. BLDGS. PITTSBURGH, PA. Pennzoil Co., 54 and A.V.R.R. Pittsburgh, Pa.

Navarro Corp., 6219 Broad St., Pittsburgh, Pa., CA. Approx. $525,000. 1 story 51x128 ft. and 15x85 ft., brick, tile CHURCH, Mt. Oliver, PITTSBURGH, PA. St. Joseph Roman Catholic Church, Mt. Oliver, Pittsburgh, Pa. Bids Sept. 25. CD 9/20.

▲† Corbetta Constr. Co., Inc., 220 E. 42 St., New York, N. Y. LB. $6,707,600. Schedule A, Refrigerated STORAGE;
Lipsett, Inc., 100 Park Ave. New York, N. Y., LB. $1,181,600, Schedule C, foundations for various bldgs., TOBYHANNA, PA. Dpt. Army, 121 N. Broad St., Phila., Pa. Gilboy & O'Malley & Stopper, Inc., Liberty Trust Bldg., Phila., Pa., engrs. and archts. CD 9/20.

▲ Ragner Benson, Inc., Investment Bldg., Pittsburgh, Pa., LB. 3 bldgs.;
Dick Constr. Co., 2532 Library Rd., Pittsburgh, Pa., LB. one addn. brick, tile, approx. 40,000 sq. ft. PLANT addn., WEST MIFFLIN, PA. Westinghouse Electric Corp. (Atomic Power Div.). Union Bank Bldg., Pittsburgh, Pa. Est. approx. $1,000,000; Bids Sept. 14. CD 9/10.

▲† John McShain, Inc., 17 and Spring Garden Sts. Phila., Pa. CA $6,574,825. main BUILDING, MARYLAND. U. S. Eng., First and Douglas Sts. N. W., Wash., D. C., CD 10/17, under LB.

▲ Consolidated Gas, Electric & Power Co., Lexington Bldg., Baltimore 13, Md. Owner Builds. $1,817,000, 78x105 ft., masonry ELECTRIC GENERATING STATION; $164,000, screen, pump, well and platform, 27x32 ft., masonry, for power generating station, Turners Station, BALTIMORE, MD. CD 8/2.

▲† John Tester & Son, 1620 2 St. N. W., Wash., D. C., CA, $2,566,907 INFIRMARY and LAUNDRY

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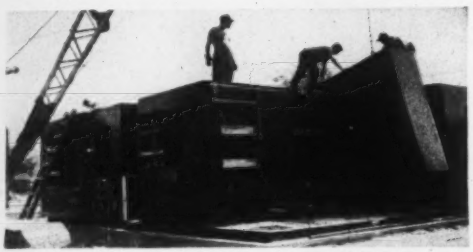

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BLDG. at Home for Aged and Infirmed, Blue Plains, WASH., D. C. Distr. Govt., District Bldg., Wash., D. C. Bids Oct. 9. CD 10/11, under LB.

SOUTH

BIDS ASKED—HEAVY CONSTRUCTION
STATE HIGHWAY LETTINGS
BRIDGES
November 13 South Carolina November 16 Kentucky
STREETS AND ROADS
November 13 South Carolina November 16 Kentucky

BIDS ASKED—BUILDINGS

Miss., West Point—HOSPITAL—B.A. 11/15—Ivy Memorial Hospital Foundation, c/o Chas H. McCauley, archt., Jackson Bldg., Birmingham, Ala., hospital, $750,000. CD 8/15/49, under Public Bldgs.

HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

▲† **Nello L. Teer Co.**, P. O. Box 1131, Durham, N. C., LB. $2,796,181, parking aprons and taxiways; **Wesco Paving Co.**, volunteer Bldg., Chattanooga, Tenn., LB. $1,733,640, runways both at Marine Corps Air Station, CHERRY POINT, N. C. Pub. Wks. Office, Naval Base, Charleston, S. C. Bids Oct. 25. CD 10/10.

MacDougald Constr. Co., Northside Dr., Atlanta, Ga., CA, $850,000, grading for Jet Aircraft runway extension, MARIETTA, GA. Lockheed Aircraft Corp., 2555 N. Hollywood Way, Burbank, Calif.

FLORIDA—State Rd. Dpt., Dixie-Sherman Hotel, Panama City,

W. L. Cobb Constr. Co., 1102 N. 22 St., Tampa, Fla., CA, $595,800, grading, stabilizing, paving, small drainage structures, State Rd. 80, between Fort Myers and point approx. 3 mi. northeast, Jobs. No. 1202-202 and 1202-203, U-024-1(3) and F024-1(4), Lee Co. Bids May 10, awarded Oct. 17. CD 4/30.

▲† **Ernest Waters Constr. Co.**, Daytona Beach, Fla., LB, $1,932,520, electrical distr. sys. for Theodolite and Camera Stations at Patrick Air Force Base, Inv. NEG-JAX-51-22, COCOA, FLA. U. S. Eng., 575 Riverside Ave., Jacksonville, Fla. CD 4/4.

† **Zaret Constr. Co.**, 1901 West Ave., Miami Beach, Fla., CA, $939,865, Missile Assembly SHOPS at Patrick Air Force Base, COCOA, FLA. U. S. Eng., P. O. Box 4970, Jacksonville, Fla. Bids Oct. 23. CD 10/5.

BUILDINGS

LOW BIDS AND CONTRACTS

Kenhill Constr. Co., 815 Myrtle Rd., Charleston, W. Va., CA, $500,000, research LABORATORY, CHARLESTON, W. VA. Westvaco Chemical Co., 8 Ave. and Ashby St., Charleston, W. Va.

▲ **Ford, Bacon & Davis**, 39 Broadway, New York 6, N. Y., CA, $11,000,000 design and construct Coal Hydrogenation PLANT, INSTITUTE, W. VA. Union Carbide & Carbon Corp., 30 E. 42 St., New York, N. Y.

▲ **Chemical Constr. Co.**, 488 Madison Ave., New York, N. Y. CA $3,500,000. PLANT addn., BATON ROUGE, LA. Consolidated Chemical Industries, Inc., 630 Fifth Ave., New York, N. Y.

▲ **Shelby Constr. Co.**, 1106 Canal St., New Orleans, La., CA, $3,290,000. HOUSING, Proj. Tenn. 4-4, CHATTANOOGA, TENN. Chattanooga Housing Auth., 2600 Fourth Ave., Chattanooga, Tenn., Bids Oct. 24. CD 9/27.

Johnson & Willard, 422 W. Front St., Knoxville, Tenn., CA, $740,000. DORMITORY for males at Eastern State Hospital, KNOXVILLE, TENN. State Dpt. Institutions, State Office Bldg., Nashville, Tenn. Bids Oct. 16. CD 10/8.

▲ **H. K. Ferguson Co.**, 1783 E. 11 St., Cleveland, O., CA. Approx. $2,000,000. PLANT addn., MEMPHIS, TENN. Arvey Corp., c/o contractor.

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MIDDLE WEST

BIDS ASKED—HEAVY CONSTRUCTION
STATE HIGHWAY LETTINGS
BRIDGES
November 14 Illinois, Michigan
Bids in December Ohio
STREETS AND ROADS
November 14 Illinois, Michigan

BIDS ASKED—BUILDINGS

▲ Ind., Terre Haute—POWER PLANT SUPERSTRUCTURE—B.A. 11/13—Public Service Co. of Indiana, Plainfield, power plant superstructure, $25,000,000. Sargent & Lundy, 140 S. Dearborn St., Chicago, 3, Ill. engrs. CD 8/22/47.

▲ Mich., Saginaw—SCHOOL—B. A. 11/20—City, Bd. Educ., Edward C. MacRae secy., 2 story, bsmnt., brick steel concrete East Side High School, $2,500,000. Plans deposit $25 refundable, Frantz & Spence, 118 N. Washington Ave., archts. CD 9/27.

HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

▲ OHIO—State Hy. Dpt., T. J. Kauer, dir., Columbus, Zone 15.

Arthur S. Langenderfer, Inc., 4690 W. Bancroft St., Toledo, O. CA. $375,477, est. $419,900, Type T-35 on B-117 and concrete structures, S. R. 15, Defiance and Williams Counties;

W. H. Ringwald & Sons Co., Inc., 42 E. 2 St., Chillicothe, O., CA. $828,943. est. $841,200. Type T-71 and concrete structures, Pts 1 and 2, S. R. 69, U. S. R. 40, Clark and Montgomery Counties;

The W. J. Seidensticker Co., 209 S. High St., Columbus, O. CA. $208,375, est. $215,100. Type T-71, concrete structures, S. R. 74, Brown Co.;

Launder & Son, Inc., Station E, Box 6, Toledo, O. CA. $233,576, est. $238,400. Type T-71, U. S. R. 24, at Napoleon, Henry Co. Grand total $1,646,371. Bids Oct. 16. CD 10/10.

Charles H. Shook, Inc., 582 W. 2 St., Dayton, O., LB. $796,731, est. $700,000. sewage disposal plant for Beavercreek Sanitary Sewer Dist., DAYTON, O. Comrs. Montgomery Co., Court House, Dayton, O. Bids Oct. 26. CD 10/17.

▲ Miller-Thompson Co., 23170 Schoenherr Rd., Detroit, Mich. LB $1,925,000. sewage plant;

W. J. Muehlenbeck, 1253 S. Water St., Saginaw, Mich. LB $766,560. west side interceptor sewer;

Santucci Constr. Co., Bay City, Mich., $659,391, open cut west side sewer;

Drainage Contractors, Inc., 22148 Michigan Ave., Dearborn, Mich., LB $656,555, east side sewer tunneling;

W. J. Meagher & Sons, Inc., 1300 S. Water St., Bay City, Mich., LB $544,566, river crossing and outfall sewer;

Mancini Constr. Co., 23170 Schoenherr Rd., East Detroit, Mich., LB $478,805, ½ tunneling east side sewer;

Friedrich & Heinrichs Constr. Co., 15095 Snowden St., Detroit, Mich., LB $184,906, east side diversion chambers;

Hawk & Welch, Inc., 15712 Cleveland St., Allen Park, Mich. LB $132,213, west side diversion chambers;

Nichols Engineering & Research Corp., 70 Pine St., New York, N. Y., LB $118,345, incinerator equip. and installation;

Wm. DePompolo & Sons, 545 S. Colonial St., Detroit, Mich. LB $230,470, end sections east side interceptors, BAY CITY, MICH. City, George MacPhail, city mgr., City Hall, Bay City, Mich. Bids Oct. 4. CD 10/31.

BUILDINGS

LOW BIDS AND CONTRACTS

Walsh Constr. Co., 122 E. 42 St., New York 17, N. Y. CA. Approx. $750,000, 2 story, bsmnt., 50x128 ft., concrete, steel SERVICE and LOCKER BLDG., 6 mi. south of MARIETTA, O. Electro Metallurgical Co., 137 47 St., Niagara Falls, N. Y. CD 8/13.

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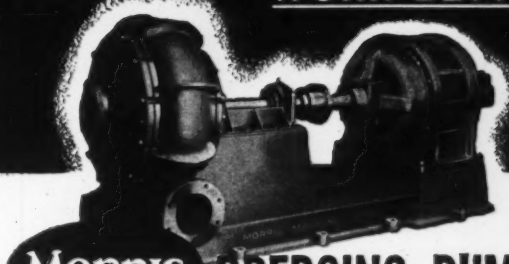

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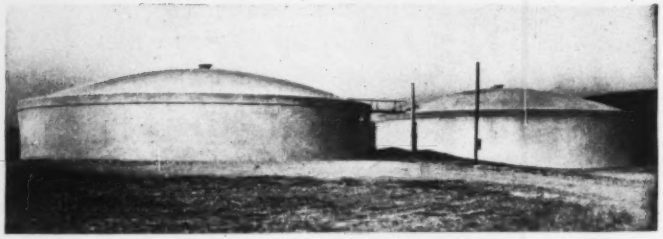

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▲ **Allen & Kelley** (sponsor), Architects & Builders Bldg., Indianapolis, Ind., CA, $1,940,000 construct, manage and finance 200 HOUSING units for Naval Ammunition Depot, CRANE, IND. Dpt. Navy, Ninth Naval Dist., Great Lakes, Ill. Awarded Oct. 11. CD 12/6.

▲ **S. N. Nielsen Co.**, 3059 Augusta Blvd., Chicago, 22, Ill. CA, $3,800,000, APARTMENT, 60 and Langley Sts., CHICAGO, ILL. Chicago Dwellings Assn., 69 W. Washington St., Chicago, 3, Ill. Bids Aug. 16, awarded Oct. 15. CD 9/5, under LB.

▲ **Nathan Manilow & Assocs.**, 105 W. Monroe St., Chicago 3, Ill. Owner Builds. $5,500,000. 1 story, 525 HOMES, DES PLAINES, ILL. Awarded Oct. 25.

▲ **Security Bldg. Co.**, 717 E. Jefferson St., Rockford, Ill., CA, $3,000,000, 5 story HOSPITAL, ROCKFORD, ILL. Rockford Memorial Hospital Assoc. 105 Douglas St., Rockford, Ill. Bids Aug. 8. CD 7/18.

▲ **Austin Co.**, 227 Curtis Bldg., Detroit, Mich. CA $2,000,000. 1 story, brick, steel, concrete FACTORY, BATTLE CREEK, MICH. Clark Equipment Co., George Spatta, pres., Battle Creek, Mich. CD 3/30.

▲ **A. E. Sharp Co.**, Flint, Mich. Owner Builds. $1,060,800. 1 story, 165x300 ft. and 165x410 ft., L shaped COMMERCIAL STORE BLDG., Detroit and W. Pierson Sts., FLINT, MICH.

▲ **Biltmore Building Co.**, 17615 James Couzens Dr., Detroit, Mich. Owner Builds. $4,000,000. 400 single HOUSES, Shadowlawn and Cherry Hill Rds., INKSTER, MICH.

▲ **Troy W. Mashmeyer Co.**, 27711 Grossbeck St., Roseville, Mich. Owner Builds. $3,000,000. 300 HOMES development, Academy and Ridgemont Sts., ROSEVILLE, MICH.

WEST OF MISSISSIPPI

BIDS ASKED—HEAVY CONSTRUCTION
STATE HIGHWAY LETTINGS
BRIDGES
November 16 Minnesota
STREETS AND ROADS
November 16, 20 Minnesota

† **Kan., Wichita**—LIGHTING SYSTEM—B.A. 11/15—U. S. Eng., at office City Comn. Room, City Bldg., 204 S. Main St., air base night lighting sys., Wichita Air Force Base. Eng. 23-028-52-10, $500,000. Bids 9/8 rejected. CD 9/12, under LB.

† **MINNESOTA**—B.A. 11/20—Bureau Pub. Rds., Dpt. Commerce, 214 Globe Bldg., 4 and Cedar Sts., St. Paul.
Cass and Itasca Counties—bit. surf. 11.189 mi., Chippewa National Forest, Minnesota Forest Hy. Proj. 8-A2, B. H. J. Spelman, div. engr.; adv. ENR 11/8. CD 12/24/43.

▲† **Tex., Waco**—WAREHOUSING—B.A. 11/23—U. S. Eng., 1127 Texas & Pacific Bldg., Fort Worth, 108,000 sq. ft. floor space base warehousing for Connally Air Force Base. $1,000,000. CD 8/6.

SOON LETS CONTRACT—BUILDINGS

▲ **Ia., Council Bluffs**—HOSPITAL ADDN.—St. Bernard's Hospital, 521 Harmony St., soon lets contract hospital addn. Approx. $1,000,000. John Latenser & Sons, 130 Farnam St., Omaha, Neb., engrs. CD 10/27/50.

HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

▲ **Union Pacific R. R. Co.**, W. C. Perkins, ch. engr., 1416 Dodge St., Omaha, Neb. Owner Builds. $3,000,000. install 145 mi. centralized traffic control along main line from Marysville, Kan. to Gibbon, Neb., KANSAS and NEBRASKA.

▲† **U. S. Eng.**, 1127 Texas & Pacific Bldg., Fort Worth, Tex. cancelled bids to have been opened Oct. 23, 385,000 sq. yd. asph. type paving runways for Van Court Auxiliary Airfield, SAN ANTONIO, TEX. $1,000,000. CD 10/2.

▲† **T. C. Bateson & Co.**, Irwin-Keasler Bldg., Dallas, Tex., CA, $1,296,800, est. $1,330,000. maintenance and operation facilities, Shepherd Air Force Base, Inv. No. ENG 34-066-52-11, WICHITA FALLS, TEX. U. S. Eng., Box 61, Tulsa 2, Okla., Bids Oct. 16, awarded Oct. 25. CD 10/23, under LB.

▲† **Gerald Mora**, Box 2623, Houston, Tex., CA, $1,002,456. P. O. L. Facilities, Inv. No. Eng 29-005-52-6, Walker Air Force Base, ROSWELL, N. M. U. S. Eng., Box 1538, Albuquerque, N. M., Bids Sept. 27, awarded Oct. 27. CD 10/2, under LB.

BUILDINGS

LOW BIDS AND CONTRACTS

H. L. Stavn Co., Hibbing, Minn. LB $984,200. Silver Lake HOUSING, VIRGINIA, MINN. Virginia Redevelopment & Housing Auth., D. A. Scher, chn., Virginia, Minn. Bids Oct. 18. CD 10/2.

▲ **J. E. Dunn Constr. Co.**, 924 Holmes St., Kansas City 6, Mo. CA $1,059,697. general contract 6 story hospital services and chest disease bldg., University of Kansas Medical Center, KANSAS CITY, KAN. State, Bd. Regents, State House, Topeka, Kan. CD 9/12, under LB.

Leo A. Daly, 633 Insurance Bldg., Omaha, Neb. (sponsor). CA $950,000. construct, manage and finance 120 HOUSING units for Navy families, OLATHE, KAN. Dpt. Navy, Ninth Naval Dist., Great Lakes, Ill. Awarded Oct. 11. CD 7/3.

▲ **Dallas Power & Light Co.**, Dallas Power & Light Bldg. Dallas, Tex., Purchase and Hire. Approx. $8,000,000. Paradale Electric Generating PLANT addn., 60,000 kw. DALLAS, TEX. CD 10/2/50.

▲ **M. W. Kellogg Co.**, M. Esperson Bldg., Houston, Tex., CA. Approx. $375,000, PRODUCTS STORAGE FARM; CA. Approx. $795,000, ALKYLATION UNIT; CA. Approx. $875,000, GAS PLANT and TREATING UNIT; CA. Approx. $550,000, SYNTHETIC DISTILLATION UNIT; CA. Approx. $700,000, REDUCED CRUDE VACUUM REFINERY UNIT, EL PASO, TEX. Grand total $3,295,000. Standard Oil Co. of Texas, Womble Blvd., El Paso, Tex. CD 10/26.

▲ **Koppers Co., Inc.**, 7001 Clinton Dr., Houston, Tex., CA. Approx. $3,150,000, construct unit of 15 Chemical Recovery COKE OVENS at existing huge steel plant, HOUSTON, TEX. Sheffield Steel Corp., Industrial Rd., Houston, Tex. Koppers, Co., Inc., M & M Bldg., Houston, Tex. consult. engr. CD 10/26.

▲ **Triangle Steel Production Co., McRan Co. and Great Lakes Steel Corp.**, Oil & Gas Bldg., Houston, Tex., CA. Approx. $1,250,000 fifty, 40x200 ft., concrete, metaltype Rice STORAGE units, HOUSTON, TEX. Harris County Production & Marketing Admin., Court House, Houston, Tex. CD 10/23.

▲ **Lion Oil Co. & Associated Companies**, Snyder, Tex., Own Forces. Approx. $7,250,000, est. $2,750,000. 40,000,000 cu. ft. capacity Natural Gasoline PLANT, approx. 10 mi. northwest of SNYDER, TEX. CD 11/24/50.

▲ **R. E. Nesmith Co.**, 6738 Long Dr., Houston, Tex., LB. $1,124,161, est. $1,750,000. 1 and 2 story, 87,000 sq. ft., rein.-con. frame, and fdn. brick, stone exterior HIGH SCHOOL, PASADENA, TEX. Pasadena Independent School Dist., Pasadena, Tex. Bids Oct. 25. CD 10/10.

▲ **The Fluor Corp., Ltd.**, 360 E. 2 St., Los Angeles, Calif. CA, Approx. $1,150,000. Sulphur Recovery Processing REFINERY PLANT, unit near SUNDOWN, TEX. Stanolind Oil & Gas Co. & Assoc., Fair Bldg., Fort Worth, Tex. CD 10/19.

FAR WEST

BIDS ASKED—HEAVY CONSTRUCTION
STATE HIGHWAY LETTINGS
STREETS AND ROADS
November 21 California

† **CALIFORNIA**—B.A. 3/18—Bureau Pub. Rds., Dpt. Commerce, 1101 Flood Bldg., San Francisco,
Fresno Co.—4.76 mi. roads in National Forest, Huntington Lake Sierra National Forest.

HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

WASHINGTON—State Hy. Dpt., Olympia,
K. L. Goulter Co., Exchange Bldg., Seattle, 4, Wash., CA, $827,781, clearing, grading, draining 3.6 mi. Hy. 2, Summit to Olallie Creek, King Co. Bids Oct. 23. CD 10/29, under LB.

▲† **Long Constr. Co.**, Billings, Mont., CA, $1,598,362, est. $1,207,433, Schedule 1, earthwork, lateral lining, pipe lines, structures for Area P-1 laterals and sub laterals, Potholes East Canal Laterals, Columbia Basin Proj., Spec. DC 3528, WASHINGTON. Bureau Reclamation, Dpt. Interior, Ephrata, Wash. Bids Sept. 19, awarded Oct. 25. CD 10/18, under LB.

▲ **CALIFORNIA**—State Div. Hys., 120 S. Spring St., Los Angeles,
Oberg Bros. Constr. Co., Box 640, Inglewood, Calif., CA $1,160,099, 6 rein.-con. bridges, etc. on Harbor Freeway, at 7, 8 and 9 Sts., Los Angeles, Los Angeles Co. Bids Oct. 4, awarded Oct. 23. CD 10/11, under LB.

▲ **CALIFORNIA**—State Div. Hys., P. Wks. Bldg., Sacramento,
Frederickson & Watson Constr. Co., & M & K Corp., 873 81 Ave., Oakland, Calif., CA, $2,551,228, grading, surf. separation structures 3.9 mi. East Shore Highway near Oakland, Alameda Co. Bids Oct. 10, awarded Oct. 25. CD 10/19, under LB.

CALIFORNIA—State Div. Hos., P. Wks. Bldg., Sacramento,
H. W. Ruby, 2851 Northrup Ave., Sacramento, Calif. LB, $543,017, 13 bridges 0.9 mi. road work at various locations between Oroville Wye and 0.3 mi. south of Chico, Butte Co. Bids Oct. 17. CD 9/25.

CALIFORNIA—State Div. Hys., 120 S. Spring St., Los Angeles,
Oswald Bros. Co., 366 E. 59 St., Los Angeles, Calif., CA, $526,731, grading, surf. 2.5 mi. Hawthorne Ave. between 174 and 137 Sts., Los Angeles, Calif. Bids Sept. 27, awarded Oct. 17. CD 10/8, under LB.

BUILDINGS

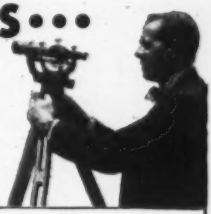
LOW BIDS AND CONTRACTS

John Goodwin, 1116 Union St., San Diego, Calif., CA, $590,887, 1 story, frame, stucco Lakeside SCHOOL addns., LAKESIDE, CALIF., Lakeside Union School Dist., Lakeside Calif. Sam Hamill, Scripps Bldg., San Diego Calif. archt.

▲ **Bechtel Corp.**, 425 Lexington Ave., N. Y., 17, N. Y., CA $2,000,000 2 story, fibre drum PLANT and WAREHOUSE, LOS ANGELES, CALIF. Continental Can Co., Inc., 3820 Union Pacific Ave., Los Angeles, Calif. CD 4/28/50.

▲ **Jos. Bettencourt**, 1015 San Mateo Ave., San Bruno, Calif. CA, $1,853,553, Benjamin Hogan Junior High SCHOOL, VALLEJO, CALIF. Vallejo City Unified School Dist., 640 Carolina St., Vallejo, Calif. Bids Oct. 15, awarded Oct. 17. CD 9/4.

Contractor H. H. Auch Reports...



● "We are happy to report . . . that the David White Universal Level Transit has our whole-hearted approval."

GEO. W. AUCH COMPANY
BUILDERS
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MT. ELLIOTT AVENUE
DETROIT 7, MICH.
TELEPHONE WALNUT 1-1190

Company,
Court Street,
Mr. E. G. ukee 12, Wisconsin.
David Wh
315 W.
Milwa
Dear Mr. Lucke:

It is with pleasure that I write you regarding the performance of our new David White Universal Level Transit, Serial #58114.

The ease and speed with which it is set up and the accuracy of the readings taken most certainly belie its actual cost. The level has been on our largest job since it arrived and the Superintendent of the job prefers to use this David White in preference to a..... which.....requires much more "set up" time; and hence, for the ordinary shots is not near as popular on the job. We are happy to report to you that this David White Universal Transit Level has our wholehearted approval.

Very truly yours,
GEO. W. AUCH COMPANY
H H Auch

Here's why you'll like a DAVID WHITE UNIVERSAL LEVEL TRANSIT too...

The David White "Universal" Level Transit is the most practical, complete builder's instrument on the market. Now available in a new improved model — complete with internal focusing, coated optics — guarded vertical arc — in fact every feature to assure you lifetime durability and accuracy.

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Model No. 3000
PRICE $185.00*
Complete with tripod
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We offer complete, prompt repair service on all makes of instruments — levels, transits, theodolites, etc.

315 W. Court Street • Milwaukee 12, Wisconsin

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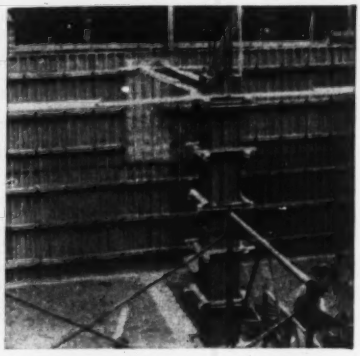
LET US SHOW YOU HOW TO CUT FORM COSTS

Just show us prints of the job. With cost studies, layouts and pouring schedules, we'll show you how to save REAL MONEY on form costs. Contractors everywhere report savings of 1/3 to ½ over wood with Speed Forms and get over 500 uses without repair. Interchangeable for use on job after job, year after year. STEEL Speed Forms can be set up, stripped, cleaned, moved and reused in far less time than the wood. Lightweight and easy to handle. No gadgets or special fastenings. No joists needed on slabs . . . . No studs on walls.



Interchangeable steel forms for slabs, walls, circular tanks, tunnels, manholes, modular structures.

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IRVINGTON FORM & TANK CORP.

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LABOR-SAVING *SPEED* FORMS

SPHERICAL TANKS on Tubular Towers

• The COLE Spherical Tank on Tubular Tower is a pioneer in its field. We design and erect special tanks of this character. It provides an attractive and serviceable unit —economical to maintain, efficient in service and pleasing in appearance.

Write for special booklet on these modern welded Spherical Tanks which provide gravity water pressure, and for copy of latest Cole catalog—"Tank Talk."

R. D. COLE MFG. CO.

NEWNAN, GA. *Established 1854*

TANKS TOWERS CYLINDERS VESSELS

ALASKA

BIDS ASKED—HEAVY CONSTRUCTION
STATE HIGHWAY LETTINGS
BRIDGES
November 19 Alaska

U. S. POSSESSIONS

BUILDINGS

LOW BIDS AND CONTRACTS

▲ **Long Corp.**, 2110 Mount Pleasant St., Charleston, S. C. CA. $5,563,000. construct, manage, finance, 575 HOUSING units at Ramey Field, AQUADILLA, PUERTO RICO. U. S. Eng., 33 Customhouse, Charleston, S. C. Bids Oct. 11. CD 10/11.

CANADA

HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

Dominion Bridge Co., Ltd., 803 24 Ave. S.E., Calgary, Alta., CA, total est. $850,000, steel contract for street and railway overpasses at 4 St. W. and 9 Ave., CALGARY, ALTA. City, Municipal Bldg., Calgary, Alta. Awarded Oct. 19. CD 10/18, under LB.

BUILDINGS

LOW BIDS AND CONTRACTS

George H. Wheaton, 1217 Wharf St., Victoria, B. C., CA, $633,013, one 180-man BARRACKS and one 500-man MESS at Work Point Barracks, VICTORIA, B. C. Defence Constr. (1951) Ltd., 360 Homer St., Vancouver, B. C. Bids Sept. 18, awarded Oct. 19. CD 9/5.

▲ **Pigott Constr. Co. Ltd.**, Pigott Bldg., Hamilton, Ont., CA, Approx. $1,625,000, 5 story, rein.-con., brick structural steel 150-bed general HOSPITAL, PEMBROKE, ONT. Rev. Sisters of the Immaculate Conception, Pembroke, Ont. W. L. Summerville, McMarrick & Oxley, 1104 Bay St., Toronto, Ont., archts. CD 6/21/48.

▲ **Foundation Co. of Canada Ltd.**, 1220 Bay St., Toronto, Ont., CA, $2,000,000, two 300 ton OPEN HEARTH FURNACES for steel mill expansion; CA, $250,000 STEEL FINISHING MILL extension; **Koppers Co. Ltd.**, Koppers Bldg., Pittsburgh, Pa., U. S. A., CA $10,000,000, coke ovens extensions; **A. G. McKee & Co.**, 2300 Chester St., Cleveland 0., CA $2,000,000, SINTERING PLANT at steel mill expansion SAULT STE. MARIE, ONT. Algoma Steel Corp., 50 Queen St. E., Sault Ste. Marie, Ont. Awarded Oct. 25.

A. W. Robertson Ltd., 57 Bloor St. W., Toronto, Ont., CA, $700,000, FACTORY, TORONTO, ONT. John Inglis Co. Ltd., 14 Strachan Ave., Toronto, Ont. CD 9/11, under LB.

▲ **Windsor Brickote Ltd.**, 1105 Tecumseh Blvd., Windsor, Ont. CA, $383,000, 50 HOUSES; **Ecclestone Constr. Ltd.**, 25 Riverside Dr., Riverside, Windsor, Ont., CA, $1,453,105. 180 HOUSES, WINDSOR, ONT. City of Windsor, Central Mortgage & Housing Corp., 1109 Wigle Ave., Windsor, Ont. Bids Oct. 12, awarded Oct. 24.

▲ **Foundation Co. of Canada Ltd.**, 1900 Sherbrooke St. W., Montreal, Que., CA, $2,157,878, RESEARCH DEVELOPMENT BLDGS. and services, MONTREAL, QUE. Defence Constr. Ltd., 1247 Guy St., Montreal, Que. M. P. McAndrew, c/o owner, engr.

W. C. Wells Co. Ltd., 140 Ave. FN., Saskatoon, Sask., CA, $670,059, 228-man BARRACK BLOCK and 3 unit canteens, Camp Canteen, SASKATOON, SASK. Defence Constr. Ltd., 400 Confederation Bldg., Winnipeg, Man. D. W. Laird, c/o owner, engr.

LATIN AMERICA

BIDS ASKED—HEAVY CONSTRUCTION

Panama—B.A. 11/29—At office Norberto Navarro, minister P. Wks., National Palace, Panama City, constr. sect. of road 25 kilometers long more or less, from intersection of David-Boquete road in Province of Chiriqui at Station 2K plus 703.10 in direction of Panama City to about Station 27K plus 800, approx. 600 meters back from Las Vueltas River, incl. grading, small structures, foundation course and base course, no pavement, construct substructure for 5 bridges over the rivers La Pita, Chorchita, Gallina, Las Vueltas and Estero Salado. Plans deposit $100.

FOREIGN

BIDS ASKED—HEAVY CONSTRUCTION

Australia, Tasmania—B.A. 1/9—Hydro-Electric Comm., W. R. Spinner, secy., Hobart, Tasmania, construct 3 tunnels in connection with hydro-electric projects on the River Derwent Catchmet area. (a) Wayatinah Tunnel cross sect. 470 sq. ft., 21,500 ft. long (b) Dee Tunnel, cross sect. 124 sq. ft., 10,500 ft. long (c) Mossy Marsh Tunnel, cross sect. 119 sq. ft., 5,250 ft. long or alternatively cross sect. 130 sq. ft. and 7,920 ft. long. Plans deposit $100.

(Proposal Advertisements see pp. 88 to 91)

They're all needed to keep steel production up

...TO AID DEFENSE

Every pound of unused iron and steel you have is needed to help steel mills and foundries keep production up to rising capacity.

Scrap inventories are alarmingly low. Mills that normally maintain inventories of several months, are now down to a day-to-day basis. Shutdowns are threatened.

One way we can maintain desired level of both military and civilian production is for you to *dig up* and *turn in* your iron and steel scrap now.

Get in touch with your local scrap dealer and write for the free booklet, "Top Management: Your Program for Emergency Scrap Recovery" to Advertising Council, 25 W. 45th St., New York 19, N. Y.

NON-FERROUS SCRAP IS NEEDED, TOO!

This advertisement is a contribution, in the national interest, by

McGRAW-HILL PUBLISHING COMPANY, INC.

330 WEST 42nd STREET, NEW YORK 18, N. Y.

A PUBLIC SERVICE PROJECT THE ADVERTISING COUNCIL

OFFICIAL PROPOSALS

Bids: November 27, 1951.

Butterfly Type Valves

CONTRACT 429

SEALED BIDS will be received by the Board of Water Supply, at its offices, thirteenth floor, 120 Wall Street, New York City, until 11:00 A.M. Eastern Standard Time, on Tuesday, November 27, 1951, for Contract 429, for furnishing, testing and delivering two 60-inch cast iron motor-operated butterfly type valves, complete in every respect, for installation in the Downsville release water chamber of the Delaware aqueduct, all as set forth in the specifications.

No bid will be received and deposited unless accompanied by a certified check upon a National or State bank, drawn and made payable to the order of the Comptroller of the City of New York, in the amount of two thousand dollars ($2,000.00), for the proper execution of the contract.

At the above place and time the bids will be publicly opened and read. Pamphlets containing information for bidders, forms of bid and contract, specifications, requirements as to surety, etc., can be obtained in Room 1311, at the above address, upon application in person or by mail, by depositing the sum of five dollars ($5.00) in cash or its equivalent for each phamplet. Within 30 days following the award of contract or rejection of bids, the full amount of such deposit will be refunded for each pamphlet submitted as a bid and a refund of four dollars ($4.00) will be made for each other pamphlet returned in acceptable condition. For further particulars, apply at the office of the Chief Engineer at the above address.

IRVING V. A. HUIE, President, RUFUS E. McCAHEN, EDWARD C. MAGUIRE, Commissioners, Board of Water Supply; RICHARD H. BURKE, Secretary.

Bids: November 28

Foundations & Miscellaneous Structures

NORTHEAST STATION
FOR THE
DEPARTMENT OF WATER SUPPLY
CITY OF DETROIT, MICHIGAN
CONTRACT NO. NE-2

IMPORTANT NOTICE: The following advertisement supersedes all previous advertisements for proposals for the construction of Foundations and Miscellaneous Structures for the Northeast Station, Contract No. NE-2, and revises the time of taking bids and deletes reference to the Raw Water By-Pass Chamber which has been removed from this Contract. The time of receiving bids has been changed from 10:00 A.M. Eastern Standard Time, November 14, 1951 to 10:00 A.M. Eastern Standard Time, November 28, 1951.

Sealed proposals for the construction of Foundations and Miscellaneous Structures for the Northeast Station, on a 64-acre site at 11000 East Eight Mile Road, will be received by the Board of Water Commissioners of the City of Detroit. Proposals shall be addressed to the Board of Water Commissioners, City of Detroit, Room 506 Water Board Building, 735 Randolph Street, Detroit 26, Michigan, and shall be endorsed "Proposal for Contract No. NE-2". Proposals will be received until 10:00 A.M. Eastern Standard Time, November 28, 1951, at which time they will be opened and read aloud in the Board Room, Fifth Floor, Water Board Building, 735 Randolph Street, Detroit 26, Michigan.

Included in the work is the construction of reinforced concrete foundation slabs for the Filter Building, Wash Water Building, Weir Chamber, Switch House, Gate Well Chamber, the High Lift Pump Cabs and some walls), the Filtered Water Conduits, Filtered Water Junction Chamber No. 2, various drain lines with appurtenances and an electrical grounding system. The total plan area of the foundation slabs exceeds 141,000 square feet. The foundation slabs, generally, are to be constructed on cast-in-place concrete end-bearing piles, the base lengths of which are established as 104 linear feet with the total number required in excess of 4600. The foundation slabs and other structures and drains are to be made in excavations, included in this Contract, at depths of from 18 feet, approximately, to 29 feet, approximately, below existing site grade.

The Contract Documents, including the Notice to Bidders, the Forms of Proposal and Agreement, the Specifications, and the Contract Drawings, may be examined during business hours, at the office of the Department of Water Supply, Room 706 Water Board Building, Detroit, Michigan. The Contract Documents may be obtained by making a deposit of Twenty-Five Dollars ($25.00) per set, which sum will be refunded upon the return of the complete Contract Documents in good condition within thirty (30) days after the bid date, or if used in making a bona fide proposal.

Each proposal shall be accompanied by a certified check or a satisfactory bidder's bond in an amount not less than five per cent (5%) of the total lump sum price bid, drawn payable to the City of Detroit, Board of Water Commissioners, as security for the acceptance of the Contract.

No proposal may be withdrawn for at least sixty (60) days after the scheduled closing time for receipt of bids.

The Board of Water Commissioners reserves the right to waive any informality in any bid and to accept any bid, or to reject any or all bids, should it deem it to be in the best interests of the City of Detroit so to do.

CITY OF DETROIT
BOARD OF WATER COMMISSIONERS
R. K. Williams, President
Oscar Wagner, Vice President
George A. Shaffer
Alfred J. Simpson
L. G. Lenhardt, Superintendent,
General Manager and Chief Engineer
E. H. Bauer, Acting Secretary

Bids: November 21, 1951

WATER WORKS IMPROVEMENTS AND ADDITIONS
WINCHESTER, TENNESSEE

Sealed proposals for the furnishing of labor and materials for the construction of additions to the distribution System; the addition of a 1,000,000 gpd filter; settling basin equipment; chemical building; addition to clear well, and pumping equipment, together with a 300,000 gallon elevated tank, will be received by the City Hall in Winchester, Tennessee at 10 o'clock a. m., Central Standard Time, on the 21st day of November, 1951, at which time they will be publicly opened and read.

Contract I consists of additions to the Distribution System, new raw water pump line to the Pumping Station, including hydrants and valves, and replacement of streets and sidewalks.

Contract II consists of installing and equipping two (2) 500,000 gpd filter units in existing filter compartments, together with control equipment, piping and valves; the construction of a chemical building, installation of a flash mix and flocculator in sedimentation basin; addition to the clear well; raw water and high-lift pumps, and foundations for a 300,000 gallon elevated tank.

Contract III consists of furnishing and erecting complete a 300,000 gallon eelvated tank on a 100-foot tower.

Copies of the drawings and specifications may be obtained from J. Sanders Parker, Consulting Engineer, 816 8th Avenue, South, Nashville, Tennessee. Copies of the drawings and specifications will be on file at the office of the Manager of the Winchester Water Works and Winchester, Tennessee; the Nashville Contractors Association, Room 311 Chamber of Commerce Building, Nashville, Tennessee, and F. W. Dodge Corporation, Union Bus Terminal, Nashville, Tennessee. A charge of deposit of $25.00 will be required of eligible bidders for the procurement of plans and specifications. This deposit will be refunded to all, except the successful bidder, tending a bona fide bid, upon the return of the plans and specifications in good condition.

Each bid must be accompanied by a surety bond, or bidder's bond, executed by the bidder and a surety company licensed to do business in Tennessee, in the sum of not less than five (5%) percent of the amount of the base bid. Within ten (10) calendar days after bids are opened and read a conditional award will be made, subject always to the Owner's right to reject any and all bids, such award to the conditioned upon the Owner's ability to obtain from the National Production Authority permission to construct the project, together with priorities which will reasonably permit obtaining the required materials and equipment. Application is at this time being made to the National Production Authority for permission to construct this project and for priorities on materials.

All bidders must be licensed contractors as required by Chapter No. 135 Public Acts of 1945 and amendment, Chapter No. 165 Public Acts of 1947 requiring the licensing of contractors, and license number and date of license shall appear on envelope containing bid.

BOARD OF WATER WORKS
COMMISSIONERS
WINCHESTER, TENNESSEE
BY: J. H. Cowden
Secretary-Treasurer

Bids: November 27, 1951

Route 44, Section 17A

STATE OF NEW JERSEY
STATE HIGHWAY DEPARTMENT
TRENTON

NOTICE IS HEREBY GIVEN that sealed bids will be received by the State Highway Commissioner for:

Construction of Route 44, Section 17A, from Hollywood Avenue to Hook Road, Deepwater, Upper Penns Neck Township, Salem County. Length—1.705 miles. The principal items of construction are: Estimated:

Roadway Items
3,213 cu. yds. Roadway Excavation-Earth
243,951 cu. yds. Borrow Excavation
12,747 sq. yds. Gravel Shoulders
26,760 sq. yds. Waterbound Macadam Base
2,945 tons Pavement, Type MA-BC-1
24,592 sq. yds. 10" Rein. Concrete Pavement
1,640 lin. ft. Rein. Concrete Pipe
5,920 lin. ft. White Concrete Curbs
Bridge Items
3,885 cu. yds. Concrete in Structures
244,280 lbs. Reinforcement Steel in Structures
993,000 lbs. Structural Steel
7,920 lin. ft. Timber Piles
12,685 lin. ft. Treated Timber Piles

Bids for the above will be received at the office of the State Highway Department, Assembly Room, Room 140, in the State Highway Office Building, 1035 Parkway Avenue, Trenton, New Jersey, on Tuesday, November 27, 1951, between eleven o'clock (11:00 A.M.—EASTERN STANDARD TIME), and will be opened and read immediately thereafter.

The receipt and opening of bids is subject to the proper qualification of the bidder in accordance with the provisions of the prequalification law and the regulations adopted by the State Highway Commissioner. Bidders must also submit a revised financial statement and statement of plant and equipment with their bid.

Drawings, specifications and form of bid, contract and bond for the proposed work are on file in the office of the State Highway Department, Trenton, New Jersey, and may be inspected by prospective bidders during office hours. Plans will be furnished on a deposit of Ten Dollars ($10.00) for each set of plans upon application to A. Lee Grover, Chief Clerk, State Highway Department, Room 139, State Highway Office Building, 1035 Parkway Avenue, Trenton, New Jersey. Bids must be made upon the standard proposal forms in the manner designated in the standard State Highway specifications and must be enclosed in sealed special addressed envelopes bearing the name and address of the bidder and the work bid upon on the outside, and must be accompanied by a certified check drawn to the order of the Treasurer of the State of New Jersey for not less than ten percent (10%) of the amount of the bid, provided that the said certified check shall not be less than $500.00 nor more than $20,000.00 and must be delivered at the above place on or before the hour named. Copies of the standard proposal forms and special addressed envelopes will be furnished on application. Bids not enclosed in sealed special addressed envelopes will be considered informal and will not be opened. The right is reserved to reject any or all bids.

Signed: R. J. Abbott
State Highway Commissioner

U. S. Government

UNITED STATES DEPARTMENT OF THE INTERIOR, Bureau of Reclamation. Sealed bids (Specifications No. DC-3581) will be received by Bureau of Reclamation, Huron, South Dakota, until November 29, 1951, and then publicly opened for furnishing labor and materials and performing all work for the construction of Midland substation, Transmission Division, South Dakota, Missouri River Basin Project. The work is situated approximately 2 miles northeast of Midland, South Dakota. Principal items are approximately: furnishing and placing reinforcement bars and fabric, 8,666 lbs.; furnishing and erecting steel structures, 49,700 lbs.; furnishing and erecting prefabricated substation service building, lump sum; installing transformers and other electrical equipment, 145,000 lbs.; and other work. Time allowed for completion will be 450 days. For particulars, address Bureau of Reclamation, Huron, South Dakota; or Building 53, Denver Federal Center, Denver, Colorado.

U. S. Government

UNITED STATES DEPARTMENT OF THE INTERIOR, Bureau of Reclamation. Sealed bids (Specifications No. DC-3580) will be received by Bureau of Reclamation, Huron, South Dakota until November 29, 1951, and then publicly opened for furnishing labor and materials and performing all work for the construction of Wicksville Substation, Transmission Division, South Dakota, Missouri River Basin Project. The work is situated approximately 1 mile south of Wicksville, South Dakota. Principal items are approximately: furnishing and placing reinforcement bars and fabric, 7,820 lbs.; furnishing and erecting steel structures, 46,700 lbs.; furnishing and erecting prefabricated substation service building, lump sum; installing transformers and other electrical equipment, 131,000 lbs.; and other work. Time allowed for completion will be 450 days. For particulars, address Bureau of Reclamation, Huron, South Dakota; or Building 53, Denver Federal Center, Denver, Colorado.

General Services Administration, Public Buildings Service, Washington, D. C., Oct. 24, 1951.—Sealed bids in duplicate for the Extension and Remodeling (except mail handling equipment), of the Terminal Annex Extension (Operation No. 1) at Los Angeles, California, will be received until 1:00 P.M., Standard Time, on Dec. 5, 1951, in Room No. G-341-B, General Services Building, Washington 25, D. C., and then publicly opened in Room No. G-341-D. Bid guarantee is required. If the amount of the contract exceeds $2000, U. S. Standard Form No. 23, Construction Contract, will be used and performance and payment bonds will be required. Upon request one set of Prebid Documents and four sets of drawings and specifications will be supplied without charge to each general contractor interested in bidding on the complete project, all of which must be returned. Not more than six additional sets of drawings and specifications may be obtained by general contractors at a charge of $20.00 per set, which will be refunded for each set returned in good condition within 15 days after the bids are opened. Checks offered as payment must be made payable to the order of the Treasurer, U. S. Upon request and in the discretion of the undersigned one set of drawings and specifications will be furnished to builders' exchanges, chambers of commerce and other similar organizations, with the understanding that the set will be returned to their premises and made available for inspection by any interested sub-contractor or material firm. Bidding material may be obtained at Room No. 1304, General Services Building, 19th and F Streets, N. W., Washington 25, D. C. Phone, EXecutive 4900, Extension 2397; also at the office of General Services Administration, 630 Sansome Street, San Francisco 11, California.

OFFICIAL PROPOSALS

Bids: November 15, 1951

Route 26 Ext., Section 2D

STATE OF NEW JERSEY
STATE HIGHWAY DEPARTMENT
TRENTON

NOTICE IS HEREBY GIVEN that sealed bids will be received by the State Highway Commissioner for:

Construction of Route 26 Extension, Section 2D, from Perry Street to Route 26 at Strawberry Street, Grading and Paving, City of Trenton, Mercer County, Federal Project No. UI-190(8). Length 1.960 miles. The principal items of construction are:

Estimated:
- 13,198 cu. yds. Roadway Excavation-Earth
- 3,500 cu. yds. Wet Excavation
- 202,797 cu. yds. Borrow Excavation
- 13,471 cu. yds. Porous Fill
- 33,664 cu. yds. Subbase
- 46,954 sq. yds. Waterbound Mac. Base & Intermediate Courses
- 7,698 tons Bituminous Concrete Pavement
- 47,008 sq. yds. Concrete Pavement Surface-Rein.
- 5,356 lin. ft. Rein. Conc. Calvert Pipe—various sizes
- 47,292 lin. ft. White Cone. Curbs
- 16,284 cu. ft. Concrete Cribbins
- 1,998 cu. yds. Concrete in Structures

Bids for the above will be received at the office of the State Highway Department, Assembly Room, Room 140, in the State Highway Office Building, 1035 Parkway Avenue, Trenton, New Jersey, on Thursday, November 15, 1951, at eleven o'clock (11:00 A.M.—EASTERN STANDARD TIME), and will be opened and read immediately thereafter.

The receipt and opening of bids is subject to the proper qualification of the bidder in accordance with the provisions of the prequalification law and the regulations adopted by the State Highway Commissioner. Bidders must also submit a revised financial statement and statement of plant and equipment with their bid.

NOTE: The proposed project is a "Federal Aid Project" authorized by the provisions of Title 27 of he Revised Statutes of New Jersey and supplements and by P. L. 769, 81st Congress, and is to be performed in accordance with the special provisions and requirements of the Bureau of Public Roads, Department of Commerce, as outlined in the specifications, which provisions require that labor be employed from lists furnished by the State Employment Service, 6-12 North Willow Street, Trenton, New Jersey. The attention of bidders is directed to the special provisions covering subletting or assigning the contract. The minimum wage paid to all common labor employed on this contract shall be $.75 per hour. The minimum wage paid to all intermediate grade of labor employed on this contract shall be $1.00 per hour. The minimum wage paid to all skilled labor employed on this contract shall be $1.50 per hour.

Drawings, specifications and form of bid, contract and bond for the proposed work are on file in the office of the State Highway Department, Trenton, N. J., and may be inspected by prospective bidders during office hours. Plans will be furnished on a deposit of Ten Dollars ($10.00) for one set of plans upon application to A. Lee Grover, Chief Clerk, State Highway Department, Room 139, State Highway Office Building, 1035 Parkway Avenue, Trenton, N. J. Bids must be made upon the standard proposal forms in the manner designated in the standard State Highway specifications and must be enclosed in sealed special addressed envelopes bearing the name and address of the bidder and work bid upon on the outside, and must be accompanied by a certified check drawn to the order of the Treasurer of the State of New Jersey for not less than ten percent (10%) of the amount of the bid, provided that the said certified check shall not be less than $500.00 nor more than $20,000.00 and must be delivered at the above place on or before the hour named. Copies of the standard proposal forms and special addressed envelopes will be furnished on application. Bids not enclosed in sealed special addressed envelopes will be considered informal and will not be opened. The right is reserved to reject any or all bids.

Signed: R. J. Abbott
State Highway Commissioner

OFFICIAL PROPOSALS

Bids: Novemebr 20, 1951

Fox Creek Sewer-Freud Avenue Outlet

DEPARTMENT OF PUBLIC WORKS
CITY OF DETROIT, MICHIGAN
CONTRACT PW-674

THE CONSTRUCTION OF THIS PROJECT HAS BEEN AUTHORIZED AND A CMP ALLOTMENT OF CONTROLLED MATERIALS AND A DO RATING FOR OTHER BUILDING EQUIPMENT AND MATERIALS APPROVED BY THE NATIONAL PRODUCTION AUTHORITY ON OCTOBER 3, 1951.

Sealed proposals for the Freud Avenue Outlet of the Fox Creek Relief Sewer, addressed to the CITY ENGINEER'S OFFICE, DEPARTMENT OF PUBLIC WORKS of the City of Detroit, and endorsed "Proposal for Contract PW-674" will be received at the OFFICE OF THE CITY ENGINEER, 30TH FLOOR — GUARDIAN BUILDING, until 2:00 p.m. City of Detroit Time, on November 20, 1951, at which time they will be publicly opened and read aloud. Any proposal received after the above-mentioned time will be returned to the bidder unopened.

The work included consists of approximately 1.26 miles of 16 foot inside diameter monolithic concrete cylindrical sewer in tunnel, extending from the existing junction chamber at Jefferson and Manistique via Manistique and Freud Avenues to the proposed Freud Avenue Pumping Station at Conner Creek, which will be constructed concurrently. Approximately 300 feet of 10 foot inside diameter sewer are required for three station inlet connections.

The Contract Documents, including Notice to Bidders, Form of Proposal and Agreement, Drawings and Specifications, may be examined and copies may be obtained by making a deposit of $15.00 per set which sum will be refunded upon the return in good condition of the complete set of Contract Documents within ten days after receipt of proposals, or if used in submitting a bona fide proposal.

Each proposal shall be accompanied by a certified check or a satisfactory bidder's bond in an amount not less than 5 percent of the total bid price as security for the acceptance of the Contract.

After the scheduled closing time for receipt of bids, no proposal may be withdrawn for at least 45 days.

The City of Detroit reserves the right to waive any informality in any bid, or to accept any bid, or to reject any or all bids, should it be deemed for its best interests so to do.

CITY OF DETROIT
CARL D. WARNER,
Commissioner of Public Works
G. R. THOMPSON,
City Engineer

OFFICIAL PROPOSALS

Bids: November 19, 1951

LaGuardia Airport

THE PORT OF NEW YORK AUTHORITY
ALTERATIONS TO FIELD LIGHTING SYSTEMS

CONTRACT LGA-220.004

Sealed proposals for alterations to the existing field lighting systems and the relocation of the wind tee at La Guardia Airport will be received at the office of the Chief Engineer of The Port of New York Authority, Room 1100, 111 8th Ave., New York 11, until 11:00 A.M., Monday, November 19, 1951, at which time and place said proposals will be opened and read.

Contract documents may be seen at the office of the Chief Engineer and copies will be furnished upon deposit of $10 per set. The deposit will be remitted if the documents are returned in good condition, not later than 30 days after the opening of proposals.

THE PORT OF NEW YORK AUTHORITY
Howard S. Cullman, Chairman
New York, November 8, 1951.

Bids: November 30, 1951

Rapid Transit Project

CONTRACT S-3

Sealed proposals will be received at the office of the Department of Purchases and Supplies, Room 295, 1404 East 9th St., on or before 12:00 noon, Friday, November 30, 1951, and will be opened and read in the Board Room, 1404 East 9th St., Cleveland, Ohio, immediately thereafter. The work for which proposals are invited consists of the construction of the bridges over Eddy Road, Lakefront Avenue, Holyoke Avenue and Elsinore Street; the Bus Underpass at Windermere Terminal; the Loop Track Overpass at Doan Avenue; Paving the New Hartshorn Road, Relocation of Sewers and Water Mains in Hartshorn and Eddy Roads, and Earthwork and Drainage from Superior Avenue to Windermere Terminal, in East Cleveland, Ohio, including all miscellaneous work appurtenant and collateral thereto.

Each bid must be made in accordance with the specifications and must be submitted on the blanks supplied for that purpose, all of which may be obtained at the office of the Chief Engineer of the Transit System, 1022 Carnegie Avenue, Cleveland, Ohio, beginning Wednesday, October 31, 1951. Copies of the contract documents may be obtained by depositing $20.00 for each set. The amount of each deposit will be refunded upon the return of the plans and documents in good condition within ten days after the opening of the bids.

Each proposal shall be accompanied by a certified or Cashier's check on a solvent bank in an amount of at least five (5) per cent of the amount bid. This check shall be given as security that if the proposal is accepted, a contract will be entered into and the performance properly secured. Said check shall be made in favor of the Cleveland Transit System. The successful bidder will be required to furnish, execute, and deliver to the Transit System a satisfactory performance bond in the full amount of the contract. The Transit Board reserves the right to reject any and all bids.

For particulars address F. B. Bullock, Superintendent of Purchases and Stores, Cleveland Transit System, Room 295, 1404 East 9th Street, Cleveland, Ohio.

(Continued on page 90)

OFFICIAL PROPOSALS

Bids: November 30, 1951

Construction of Cofferdam Off Shores of Lake Michigan

AT
CHICAGO, ILLINOIS
FOR
NEW CENTRAL DISTRICT FILTRATION PLANT
SPECIFICATIONS NO. 80.391-51-4
DEPARTMENT OF PURCHASES, CONTRACTS AND SUPPLIES

Chicago, October 26, 1951.

SEALED PROPOSALS will be received by the City of Chicago until 11:00 A.M., Central Time, Friday, November 30, 1951, at Room 401, City Hall, Chicago, Illinois, at which time and place the bids will be opened and read for furnishing all materials, equipment and labor required for the construction of a combination cellular sheet steel piling type cofferdam and a clay and stone fill dike type cofferdam together with excavation, dredging, sand fill, dewatering the structure, field office building and other related work for the Central District Filtration Plant, located Five Hundred (500) feet off shore, Four Hundred (400) feet North of Navy Pier in Lake Michigan.

All the above in accordance with specifications and contract documents numbered above on file in the office of the Department of Purchases, Contracts and Supplies of the City of Chicago, Room 401, City Hall, Chicago, Illinois.

Proposals must be submitted upon the forms provided, available in Room 401, City Hall, Chicago, Illinois and be addressed to the Department of Purchases, Contracts and Supplies, labeled "Proposal for Construction of Cofferdam at Central District Filtration Plant", and be accompanied with ONE HUNDRED THOUSAND DOLLARS ($100,000.00) in money, cashier's check, certified check or a Comptroller's Certificate of monies owed the particular vendor for the same amount. Checks are to be drawn on some responsible bank located and doing business in the United States and be made payable to the order of the Purchasing Agent, City of Chicago.

Plans and specifications may be obtained upon the payment of TWENTY-FIVE DOLLARS ($25.00) for each set, which will be refunded upon the return of said plans and specifications in good condition within THIRTY (30) days after the opening of bids. Deposits to be in the form of money or certified check. Checks to be made payable to the order of the Purchasing Agent, City of Chicago.

In accordance with the provisions of an Act of the General Assembly of the State of Illinois, entitled "An Act regulating wages of laborers, mechanics and other workmen employed under contracts for Public Works", approved June 26, 1941, the general prevailing wage rates for work at the construction site are set forth in the specifications.

The Purchasing Agent reserves the right to reject any or all bids.

No proposal will be considered unless the party submitting the same shall furnish evidence satisfactory to the Purchasing Agent of ability and the possession of the necessary facilities, together with sufficient pecuniary resources to fulfill the conditions of the contract and specifications.

J. F. WARD
Purchasing Agent

Bids: December 11, 1951

San Jacinto River Dam

HOUSTON, TEXAS

Sealed bids, in duplicate, will be received by the City Secretary of the City of Houston, until 3:00 p.m. C.S.T., Tuesday, December 11, 1951, and all bids will be opened and publicly read in the City Council Chamber at 3:15 p.m. on that date, for constructing the SAN JACINTO RIVER DAM, INTAKE AND 72 INCH REINFORCED CONCRETE CONDUITS.

The dam consists of an Ambursen Type reinforced concrete slab-and-buttress spillway 3160 feet long and 47 feet high, with earth embankments at each end. The following approximate quantities are required for the principal items:

80,000 c.y. Stripping
46,000 c.y. Core trench excavation
860,000 c.y. General excavation
50,000 c.y. Trenching, and finishing excavation
18,000 c.y. Backfill
360,000 c.y. Embankments, Impervious
755,000 c.y. Embankments, Pervious
250,000 c.y. Embankments, Unclassified
12,000 c.y. Topsoil
73,000 c.y. Reinforced concrete in foundation floors, mats, and paving
55,000 c.y. Reinforced concrete in buttresses, piers, deck slabs, abutments and structures
40,000 c.y. Gravel fill
4,000 c.y. Rockfill
2,000 c.y. Oyster shell road surfacing
6,500 tons Steel sheet piling
7,000 tons Reinforcing steel
20,000 sq. ft. premolded joint filler
3,600 lbs. copper water seals
2 Steel Tainter gates
2 Hinged steel flashboards
4 Electric gate hoists
1 Steel foot bridge
1 Intake tower, complete
1,150 Lin. Ft. dual 72" reinforced concrete conduit

The City has already purchased and will supply to the Contractor all miscellaneous steel and metallic items as follows: all reinforcing steel, cut and bent; all steel sheet piling; 2 Tainter gates and 2 steel flashboards, fully fabricated; 4 complete gate hoists with motors; 3 sluice gates and operating mechanisms with fabricated steel racks; all pipe rail, completely fabricated; steel foot bridge, completely fabricated; all miscellaneous and structural steel items required for dam intake tower and conduits completely fabricated.

The City has received a CMP allotment.

The plans, specifications and bidding documents may be secured from the office of the Director of the Utilities Department, City Hall, Houston, or from Ambursen Engineering Corporation, 295 Madison Avenue, New York or M & M Building, Houston, Texas.

Bids must be made on the standard proposal form, in duplicate, and must be accompanied by Cashier's check or Bidder's Bond in an amount equal to 10% of the total maximum bid price.

The City reserves the right to reject any and all bids, or to accept any bid deemed advantageous to it.

A deposit of $50 is required for each set of plans and specifications, which will be refunded in full upon their return in good condition within 15 days after date of bidding.

M. H. Westerman
City Secretary

October 17, 1951

Bids: December 7, 1951

Rocky Gorge Dam and Pumping Plant on Patuxent River Laurel, Maryland

Sealed proposals, addressed to the Washington Suburban Sanitary Commission for constructing the ROCKY GORGE DAM AND PUMPING PLANT on the Patuxent River near Laurel, Maryland, will be received in the office of the Commission, Hamilton Street, Hyattsville, Maryland, until Friday, December 7, 1951, at 11 A.M., Eastern Standard Time, at which place and time they will be publicly opened and read.

The dam will consist of an Ambursen Type reinforced concrete slab-and-buttress dam, about 725 feet long and 130 feet high, with earth embankments at each end.

Alternate bids will also be received on a mass-concrete gravity type dam.

The approximate quantities of the principal items of each of the two types of dam are as follows:

Ambursen Type Dam
8,500 c. y. Mass excavation, common
2,500 c. y. Trench excavation, common
1,000 c. y. Mass excavation, rock
2,500 c. y. Trench excavation, rock
25,200 c. y. Reinforced concrete in slabs, buttresses, piers, abutments and bridge
1,500 c. y. Mass concrete in cut-offs and fills
1,100 tons Reinforcing steel
5,000 s. f. Line drilling

Gravity Type Dam
11,000 c. y. Mass excavation, common
500 c. y. Trench excavation, common
19,000 c. y. Mass excavation, rock
1,500 c. y. Trench excavation, rock
35,000 s. f. Line drilling
5,400 c. y. Reinforced concrete in piers, walls, hearth and bridge
90,000 c. y. Mass concrete in dam and cut-off
370 tons Reinforcing steel

Items Common to Both Types of Dam
1,500 c. y. Earth embankment
2,500 c. y. Backfill
1,000 l. f. Drilling and grouting holes 25 ft. deep
2,000 l. f. Drilling and grouting holes 50 ft. deep
13 tons Structural steel in trash racks
7 Tainter gates, 15 ft. x 27 ft.
2 Traveling hoists for Tainter gates
1 48-inch free discharge valve
1 Caterpillar gate, 6 ft. x 6 ft., with hoist
3 Sluice gates, 6 ft. x 8 ft., with hoists

Pumping Plant and Pipeline, Common to Both Types of Dam
1,000 c. y. Excavation for pipeline, common
6,000 c. y. Mass excavation for penstock, rock
4,000 c. y. Mass excavation for pumping plant, rock
1,200 c. y. Mass excavation for substructure, rock
1,000 c. y. Reinforced concrete in superstructure
136,000 lbs. 66-inch diameter welded steel pipeline and penstock
3 Pumps with 600 hp motors, capacity 12,600 G.P.M. at 165-ft. head
3 Hydraulic turbines, 600 hp, complete

The Commission has received a CMP allotment.

The plans and specifications and bidding documents may be secured from the office of the Washington Suburban Sanitary Commission, Hamilton Street, Hyattsville, Maryland, or from the Commission's consulting engineers, Ambursen Engineering Corporation, 295 Madison Avenue, New York, or M & M Building, Houston, Texas. A deposit of $100 is required for each set of plans and specifications, which will be refunded in full upon their return in good condition within 15 days after date of bidding.

The right is hereby reserved to reject any or all proposals, and to waive informalities, as the interest of the Commission may require.

No bidder may withdraw his bid within 45 days after the opening thereof.

The successful bidder will be required to be bonded to the Commission to a sum equal to 100% of the amount of his proposal.

Each proposal must be accompanied by a certified check or bidder's bond for 5 per cent of the amount of the proposal.

WASHINGTON SUBURBAN SANITARY COMMISSION
Raymond W. Bellamy
L. S. Ray
J. Norman Ager
Commissioners

Bids: November 20, 1951

Electric Substations & Transformers

CONTRACT 414

SEALED BIDS will be received by the Board of Water Supply, at its offices, thirteenth floor, 120 Wall Street, New York City, until 11:00 A.M., Eastern Standard Time, on Tuesday, November 20, 1951, for Contract 414, for furnishing, testing and delivering two 150-Kva. indoor unit substations and two 45-Kva. indoor and three 15-Kva. outdoor transformers for the Neversink and East Delaware intake chambers and the Downsville release water chamber of the Delaware aqueduct, all as set forth in the specifications.

No bid will be received and deposited unless accompanied by a certified check upon a National or State bank, drawn and made payable to the order of the Comptroller of The City of New York, in the amount of two thousand dollars ($2,000.00), for the proper execution of the contract.

At the above place and time the bids will be publicly opened and read. Pamphlets containing information for bidders, forms of bid and contract, specifications, contract drawing, requirements as to surety, etc., can be obtained in Room 1311, at the above address, upon application in person or by mail, by depositing the sum of five dollars ($5.00) in cash or its equivalent for each pamphlet. Within 30 days following the award of contract or rejection of bids, the full amount of such deposit will be refunded for each pamphlet submitted as a bid and a refund of four dollars ($4.00) will be made for each other pamphlet returned in acceptable condition. For further particulars, apply at the office of the Chief Engineer at the above address.

IRVING V. A. HUIE, President, RUFUS E. McGAHEN, EDWARD C. MAGUIRE, Commissioners, Board of Water Supply; RICHARD H. BURKE, Secretary.

OFFICIAL PROPOSALS

Bids: November 14, 1951

New York Highway Projects

NOTICE TO CONTRACTORS: STATE DEPARTMENT OF PUBLIC WORKS, ALBANY, N. Y.—Pursuant to the provisions of the Highway Law, and special provisions for projects financed with federal aid funds, sealed proposals will be received until ten-thirty o'clock A.M., eastern standard time Wednesday, November 14, 1951 by Henry A. Cohen, Director, Bureau of Contracts & Accounts, 14th Floor, The Governor Alfred E. Smith State Office Building, Albany, N. Y., for the following projects: Maps, plans, specifications and proposal forms may be seen and obtained at the office of the State Department of Public Works, Bureau of Contracts & Accounts, Albany, N. Y., and at the office of the District Engineers noted below, and may also be seen at the office of the State Department of Public Works, 270 Broadway, New York City.

The deposit for plans and proposal forms for each contract is indicated below. A refund will be made in full to bidders for the return of one set in good condition within 30 days of award or rejection of bids; refund for all other sets in good condition, similar period, will be 50% of deposit.

County	Contract No.	Name	Miles	Type	Deposit	Estimated Cost of Work
		DISTRICT No. 1				
		G. L. Nickerson, Dist. Engr., 353 Broadway, Albany, N. Y.				
		DISTRICT No. 8				
		J. S. Bixby, Dist. Engr., Pleasant Valley Road, Poughkeepsie, N. Y.				
12 Counties 5 Cities	FARC51-17 FARC51-24	Installation of Automatic Recording Traffic Counters in Dists. 1 & 8 Proj. No. SWHP 1(8)		Installation of 25 Automatic Recording Traffic Counters	$2,400 Plans $15	$42,000
		DISTRICT No. 2				
		L. Ketchum, Dist. Engr., 109 No. Genesee St., Utica, N. Y.				
		DISTRICT No. 3				
		Wm. Robinson, Dist. Engr., Weigh Lock Bldg., Syracuse, N. Y.				
		DISTRICT No. 7				
		R. F. Hall, Dist. Engr., 444 VanDuzee St., Watertown, N. Y.				
13 Counties 5 Cities	FARC51-18 FARC51-19 FARC51-23	Installation of Automatic Recording Traffic Counters in Dists. 2, 3, & 7 Proj. No. SWHP 1(8)		Installation of 28 Automatic Recording Traffic Counters	$2,600 Plans $15	$44,100
		DISTRICT No. 2				
		L. Ketchum, Dist. Engr., 109 No. Genesee St., Utica, N. Y.				
Oneida	RC51-79	Cleveland-Vienna, Pts. 3 & 4, S. H. 8102-8103	0.27	Asph. Conc. Ty. 1A, Opt.	$3,000 Plans $10	$59,000
		DISTRICT No. 3				
		Wm. Robinson, Dist. Engr., Weigh Lock Bldg., Syracuse, N. Y.				
Cayuga	FASS51-25	Fosterville-Throopsville, C. R. 10 Proj. No. S364(1)	3.59	Bit. Mac. Opt.	$14,000 Plans $15	$243,000
		DISTRICT No. 4				
		A. R. Mulligan, Dist. Engr., Barge Canal Terminal, Rochester, N. Y.				
Monroe	FAC51-7	Rochester City: Ridge Road West (Mt. Read Blvd. to Lake Ave.) Proj. No. U402(6)	1.67	Asph. Conc. Ty. 2A = 1.60 mi. Misc. Work = 0.07 mi.	$40,000 Plans $25	$762,000
		DISTRICT No. 5				
		C. R. Waters, Dist. Engr., 65 Court St., Buffalo, N. Y.				
Cattaraugus	FAS SH51-9	Ellicottville-Springville, Pt. 1 Proj. S365(1)	9.34	Asph. Conc. Ty. 1A, Opt. = 9.17 mi. Misc. Work = 0.17 mi. 23' Conc. Slab	$70,000 Plans $50	$1,222,000
		DISTRICT No. 6				
		H. F. Brumm, Dist. Engr., 30 West Main St., Hornell, N. Y.				
Chemung & Tioga	FARC51-66	Erin-Van Etten-Spencer, Pts. 2 & 3, S. H. 8010-5657 Spencer Village, S. H. 9091 Spencer-Candor, Pt. 1, S. H. 845 Proj. No. F58(3), S730(2)	5.01	Asph. Conc. Ty. 1A, Opt.	$53,000 Plans $15	$952,000
		DISTRICT No. 8				
		J. S. Bixby, Dist. Engr., Pleasant Valley Rd., Poughkeepsie, N. Y.				
Dutchess	FARC51-76	Rhinebeck-Hyde Park, S. H. 432 Hyde Park-Staatsburg, S. H. 5135 Proj. No. F322(10)	2.48	9" Cem. Conc. Pavt., 44' Var Wide	$48,000 Plans $10	$813,000
Westchester	TSP51-2	Grade Separation of Underhill Road (Co. Rd. 131) & Taconic State Parkway	0.23	Asph. Conc. Type 1A, Opt. 85'-234' Sp. Conc. Rigid Frame	$16,000 Plans $15	$274,000
Westchester	FARC51-74	White Plains-Rye Lake, S. H. Lake Street, S. H. 9247 Proj. No. S376(1)	5226 1.84	9" Cem. Conc. Pavt., 24' Wide	$25,000 Plans $10	$457,000
		DISTRICT No. 9				
		F. W. Donovan, Dist. Engr., 71 Frederick St., Binghamton, N. Y.				
Broome	FAC51-5 FARC51-50	Binghamton-City: Court St., FAC48-7 Vestal, S. H. 420 Park Bridge, S. H. 127 & Binghamton-Windsor, Pt. 2, S. H. 5022 Proj. No. U401(8); U344(17)	2.34	Landscaping	$1,100 Plans $10	$20,000
Chenango	FARC51-78	Norwich-South New Berlin, Pt. 2, S. H. 1394 Proj. No. F620(8)	0.11	Misc. Work 35' Concrete Slab	$3,000 Plans $10	$52,000
		DISTRICT No. 10				
		J. J. Darcy, Dist. Engr., Montauk Highway at Little E. Neck Rd., Babylon, L. I., N. Y.				
Suffolk	FARC51-75	Cold Spring-Huntington-Fort Salonga, Pt. 2, S. H. 1632 Proj. No. F566(4)	1.45	Asp. Conc. Ty. 1A, Opt.	$8,000 Plans $10	$153,000
Suffolk & Nassau	FARC51-51	State Highways Nos. 9018-8474-E8435-8470-E8440-8444-8445-8460-1841-8291-1883-1274 Proj. Nos. F541(8); F985(6)	19.10	Landscaping = 17.00 mi. Landscaping & Misc. Work = 2.10 mi.	$3,500 Plans $10	$62,000

Special attention of bidders is called to "General Information for Bidders" in the proposal, specification, and contract agreement, and to the special provisions applying to projects financed with federal funds. Award of a contract is subject to the "Controlled Materials Plan" of the National Production Authority as well as to regulations issued thereunder.

Proposal for each contract must be submitted in a separate sealed envelope with the name and number of the contract plainly endorsed on the outside of the envelope. Each proposal must be accompanied by draft or certified check payable to the order of the "State of New York, Commissioner of Taxation and Finance" for the sum as specified in the advertisement and the proposal. The retention and disposal of the bidding check, the execution of the contract and bonds shall conform to the provisions of the Highway Law, as set forth in "Instructions to Bidders".

When optional types are permitted on contracts with federal funds, bidders must state in the space provided in the proposal the exact designation of the optional type upon which the proposal is predicated.

The right is reserved to reject any or all bids.

B. D. TALLAMY
Supt. of Public Works

OFFICIAL PROPOSALS

Bids: November 20, 1951

Miscellaneous Work, Totowa, N. J.

Notice is hereby given that sealed proposals will be received in the office of the Director, Division of Purchase and Property, Room 318, State House, Trenton 7, New Jersey, for the following:

General work, structural steel, plumbing, heating and ventilating, and electric work in connection with Nursery Building and Housing for Patients at the North Jersey Training School at Totowa, New Jersey.

Bids for the above will be received at the office of the Director, Division of Purchase and Property, State House, W. State St., Trenton 7, New Jersey on Tuesday, November 20, 1951 at two (2:00) o'clock and will be opened and read immediately thereafter. Bids must be made on the standard proposal form, and must be accompanied by a certified check drawn to the order of the Treasurer of the State of New Jersey for not less than 5% of the amount of the bid, cash, in the amount of 5% of the bid or a bid bond in the amount of 5% of the bid, and must be delivered at the above place on or before the hour named, as no bid will be accepted after the hour specified. Bids not submitted on the standard proposal form or enclosed in other than special addressed envelopes will be considered informal and will be rejected. The Director reserves the right to reject any and all bids and to award contract in part or whole if deemed to the best interests of the State to do so. The successful bidder will be required to qualify for surety bond in the full amount of the contract, of a company authorized to do business in the State of New Jersey.

Plans and specifications, form of bid, contract and bond for the proposed work are on file and may be obtained upon application to the Director, Division of Purchase and Property, State House, Trenton, New Jersey on deposit of twenty-five dollars ($25.00) for each set; this amount to be refunded to the bidder upon receipt of same in good condition within 30 days after the award of the contract.

DEPARTMENT OF THE TREASURY
Division of Purchase and Property
Fred V. Ferber, Director

U. S. Government

UNITED STATES DEPARTMENT OF THE INTERIOR, Bureau of Reclamation. Sealed bids (Specifications No. DC-3583) will be received by Bureau of Reclamation, Ephrata, Washington, until November 29, 1951, and then publicly opened for furnishing labor and materials and performing all work for the construction of Scooteney Pumping Plants and laterals, area P-2, Columbia Basin Project, Washington. The work is situated approximately 16 miles south of Othello, Washington. Principal items are approximately: excavation, 39,400 cu. yds.; furnishing and handling cement, 1,600 bbls.; furnishing and placing reinforcement bars, 94,000 lbs.; furnishing and laying concrete pipe, 3,200 lin. ft.; installing equipment, 117,000 lbs.; and other work. Time allowed for completion will be 315 days. For particulars, address Bureau of Reclamation, Ephrata, Washington; or Building 53, Denver Federal Center, Denver, Colorado.

Department of Commerce, Bureau of Public Roads, October 25, 1951. SEALED BIDS will be received at the office of the Bureau of Public Roads, 214 Globe Building, 4th and Cedar Streets, St. Paul, Minnesota, until 11:00 a.m., C.S.T. NOVEMBER 20, 1951, for Minnesota Forest Highway Project No. 8-A2, B, Chippewa National Forest, Cass and Itasca Counties, Minnesota. Grading, Draining, Bituminous Surfacing, and other work. Length 11.189 miles from near Bena to State Highway No. 46. The approximate quantities of the more important items are 35 acres Clearing and Grubbing, 167,000 cu. yd. Excavation, 170,000 sq. yd. Stabilized Base Course with Tar and 145,000 sq. yd. Road-Mix Surfacing with Ahsphalt. Minimum wage rates have been fixed as required by law. Plans, Specifications, and Proposal forms are available upon request at the address given above, or Bureau of Public Roads, 1440 Columbia Pike, Arlington, Virginia. H. J. Spelman, Division Engineers.

READ THE OFFICIAL PROPOSAL COLUMNS OF
ENGINEERING NEWS-RECORD
THIS WEEK AND EVERY WEEK

ESTIMATOR

Permanent position for a man approximately 35 years old with large Pittsburgh General Contracting firm. Must be thoroughly experienced in Commercial, Industrial, and Institutional building construction. Equal emphasis is placed on pricing as well as quantity takeoff. Salary limited only by applicant's ability and experience. Submit information stating experience, education, age, and availability. Replies confidential.

P-2153, Engineering News-Record
330 W. 42 St., New York 18, N. Y.

WISCONSIN HIGHWAY COMMISSION
PERMANENT POSITIONS
SURVEYING — DESIGN
CONSTRUCTION — RESEARCH

Engineer Graduates Start at $308

Graduates with MA or 2 years highway experience start at $358. $15 increase after 6 months of satisfactory service.

VACANCIES IN HIGHER POSITIONS FILLED BY PROMOTION MERIT BASIS

Vacation - sick leave - good retirement plan - civil service.

Examinations arranged at or near residence.

For applications and additional information write:

STATE HIGHWAY COMMISSION

State Office Building Madison 2, Wis.

SALARIED POSITIONS $3,500—$35,000

We offer the original personal employment service (established 41 years.) Procedure of highest ethical standards is individualized to your personal requirements. Identity covered; present position protected. Ask for particulars.

R. W. BIXBY, Inc., 272 Dun Bldg., Buffalo 2, N.Y.

REPLIES (Box No.): Address to office nearest you
NEW YORK: 330 W. 42nd St. (18)
CHICAGO: 520 N. Michigan Ave. (11)
SAN FRANCISCO: 68 Post St. (4)

POSITIONS VACANT

ASSISTANT PLANT Engineer for Water Supply—Experience required in the operation of electrically driven pumps, generators, and general maintenance of a water pumping plant. Apply by mail giving qualifications, experience, and salary desired. P-2288, Engineering News-Record.

CONSTRUCTION SUPERINTENDENT. Permanent position. Must be top grade building construction management man with extensive industrial and monumental project experience. Nationally prominent construction company established over 50 years offers good opportunity to right man. Our Personnel know of this ad. A complete experience record is desired. Address Box P-2079, Engineering News-Record.

DESIGNERS AND Checkers—Experienced in Structural Steel and Reinforced Concrete. Long work program on Power Plants, Chemical Plants, Oil Refinery, and other Industrial Projects. Large, established engineering firm in Philadelphia, offering excellent employee benefits and premium pay for all over-time work. P-2352, Engineering News-Record.

ENGINEERS, EXPERIENCED in paving work. Laying water mains and general water and sewage treatment works to act as Resident Engineers. Advise salary requirements and when available. work near capitol district, New York. P-2356, Engineering News-Record.

SEARCHLIGHT SECTION

(Classified Advertising)

EMPLOYMENT: BUSINESS: **"OPPORTUNITIES"** :EQUIPMENT :USED OR RESALE

UNDISPLAYED RATE

$1.50 a *Line*, minimum 3 lines. To figure advance payment count 5 average words as a line.
Discount of 10% is allowed if full payment is made in advance for 4 consecutive insertions.
POSITION WANTED and Individual Selling Opportunity undisplayed rate is one-half of above rate, payable in advance.
Box Numbers in care of our New York, Chicago and San Francisco Offices count as one additional line.

Replies are forwarded each day as received at each of the offices mentioned without additional charge.

EQUIPMENT WANTED or FOR SALE Advertisements acceptable only in Displayed Style.

DISPLAYED RATE

The advertising rate $14.25 per inch for all advertising appearing on other than a contract basis. Contract rate quoted on request.
Box Advertising Inch is measured ⅞ inch vertically on one col. . 3 col.—30 inches to a page. E.N.R.

New Advertisements received by November 9th will appear in the November 22nd issue.

Fire Protection ENGINEERING

An expanding field with a top-flight organization.

RECENT GRADUATES

Wanted to train as fieldmen. Send personal resume to:

P-1783, Engineering News-Record
330 W. 42nd Street, New York 18, N. Y.

ENGINEERS DESIGNERS

. . . with qualifying design experience in Chemical Processing, Steam or Hydro Plants, Petroleum Refining or related heavy industry.

Assignments in
SAN FRANCISCO LOS ANGELES
For information write
BECHTEL CORPORATION
220 Bush Street
San Francisco, California

POSITIONS VACANT

DESIGNER SOME College, 10-15 years experience. Need man who can handle design of piping systems, pressure vessels, supports, foundations for chemical plants. If you are 35-40 and looking for a permanent job with security, retirement plan, etc, send complete resume, desired salary and date available. P-2392, Engineering News-Record.

ENGINEERS (3), Chemical or Mechanical. Degree. 30-40 years of age. Ten years minimum of experience, preferably in chemical industry construction section. Job entails preparation of calculations, equipment specifications and selection; review of proposals; written assignments and reviewing designs. Work out of N. Y. Office—some travel. Professional Engineers license desired. Permanent position. All Company benefits. If qualified, send complete resume, desired salary and date available. P-2389, Engineering News-Record.

PROJECT ENGINEER. Permanent position with large industrial company, leader in its field, for man with degree who can coordinate work within project, group and outside agency. Make schedules, review designs, select equipment, analyze cost estimates and assume responsibility for individual project. Professional Engineers license required. Age 35-40, 10 years or more experience. Travel, work out of N. Y. Office. If qualified, send complete resume, desired salary and date available. P-2395, Engineering News-Record.

OPENINGS ARE Available for men with some experience in structural design, sanitary, water supply, architecture, plumbing and heating, and electrical work. Many employee benefits, including generous bonus plan. Permanent positions in well established growing engineering organization. Conover, Townsend & Associates, 351 E. Ohio Street, Chicago 11, Illinois.

WANTED
DESIGNERS, DRAFTSMEN
PIPING AND MECHANICAL

for long term job in Southern Ohio. Steel mill design experience desirable but not necessary. Good working conditions and housing. Moving expenses paid for men and families who qualify.

P-2262, Engineering News-Record
520 N. Michigan Ave., Chicago 11, Ill.

DESIGN ENGINEER

For an established, permanent engineering group in a process industry. An excellent opportunity for right man to handle project engineering work for a chemical manufacturer, including pumps, piping, steel, chemical plant equipment, etc. Modern plant, good working conditions, located in a desirable, small eastern community.

P-2396, Engineering News-Record
330 W. 42 St., New York 18, N. Y.

SANITARY ENGINEERS

California offers several positions with opportunity for professional advancement. Two years sanitary or public health engineering experience required plus college engineering degree.

Salary $376 to $458

Write today Recruitment Section, Dept. PH
STATE PERSONNEL BOARD
1015 L Street Sacramento, California

WANTED—CITY ENGINEER

Rapidly Growing Western North Dakota City of 8,000 population needs a City Engineer. Must be registered or eligible for registration in North Dakota. Start Immediately.

H. L. GRIMSTVEDT, *City Auditor,*
Williston, North Dakota

POSITIONS VACANT

ENGINEERS WITH experience in preparation of plans for sewage and water treatment projects or related experience such as structures, hydraulics, etc. Location Northwestern Ohio. P-2319, Engineering News-Record.

FIELD ENGINEER for building in Tennessee. Man desired will also act as project engineer. Liberal salary and excellent opportunity. Write complete experience including education, references, salary and availability. Blount Brothers Construction Co., Box 1144, Montgomery, Alabama.

FIELD ENGINEER. Permanent position. Desired for nationally prominent construction company. Man desired must have had heavy experience on layout work for foundations and building interiors. When replying, forward complete experience record. Address Box P-2080, Engineering News-Record.

HEATING AND Refrigeration Engineer wanted. Must be capable of handling mechanical layout, design and supervision of such installation. Locations of offices served are Racine, Wisconsin; Waukegan, Illinois; Lake Forest, Illinois; and Evanston, Illinois. Pay commensurate with ability. The firm is one of the largest plumbing, heating and refrigeration companies between Chicago and Milwaukee, and is expanding its services yearly. Stiles & Horne, Inc., 648 North Western Ave., Lake Forest, Illinois.

(Continued on page 94)

DESIGNERS

We need men with experience as:

Structural Designers
Concrete Designers
Electrical Designers
Piping Designers
Checkers

Men should have experience in Blast Furnaces, Steel Mill, Oil Refinery or other Heavy Structural Design.

Positions available in our offices at Cleveland, Ohio and Union, New Jersey.

We pay among highest rates plus annual profit-sharing bonus.

Our continuous expansion and growth offers many fine future opportunities.

WRITE.

ARTHUR G. McKEE & Co.
2300 Chester Ave., Cleveland 1, Ohio

DESIGNERS

Heavy Industrial Construction

ELECTRICAL
STRUCTURAL
MECHANICAL
PIPING

Minimum 5 years experience

PROGRESSIVE EXPANDING COMPANY

Many Worthwhile Employee Benefits including Company Paid Hospitalization, Insurance and Pension Plan

NOW WORKING SIX 8-HOUR DAYS PER WEEK
PREMIUM PAY AFTER 40 HOURS

Call in person or address a resume of your education, experience, salary received, salary expected, etc., to Mr. J. T. Somers

WILPUTTE COKE OVEN DIVISION
Allied Chemical & Dye Corporation
ASHLAND, KENTUCKY

ENGINEERS

for design and construction of several major municipal projects. Starting Salaries: $3707, $4514, $5334, $6143, $7036 per year. Write

DETROIT CIVIL SERVICE COMMISSION
735 Randolph St. Detroit 26, Mich.

ENGINEERS
DESIGNERS & DRAFTSMEN

Electrical, Mechanical
Structural & Hydraulic

Reinforced Concrete
Designers & Detailers

FOR WORK ON

Industrial Plants
Paper & Textile Mills
Water Supply & Waste Disposal
Steam & Hydroelectric Power Plants
Electrical Transmission & Distribution

CHAS. T. MAIN, Inc.
80 Federal Street Boston 10, Mass.

ENGINEERS

Chemical - Mechanical - Piping - Process

Long term openings in permanent offices located at Cleveland, Ohio and Frederick, Maryland offering good salary plus overtime (forty eight hour week) for qualified Engineers, Group Leaders and Designers experienced in one or more of the following phases of industrial plant design:

Process Piping	Plumbing	Heating and Ventilation
Instrumentation	Tanks and Vessels	Refrigeration
Process Equipment Layout	Boiler Houses	Sprinklers
Packaging	Plant Layout	Water Treatment
Air Conditioning	Conveyors	

Limited number of openings for Estimators experienced in Mechanical and Chemical installations as well as building construction.
Also have a number of openings in our Cincinnati and New York City offices for similar type personnel.

Excellent working conditions with paid vacations, sick leave plan and participating Group Insurance Program.
Please submit complete resume stating experience, education, salary required and date available to:

The H. K. FERGUSON COMPANY
Engineers and Builders
FERGUSON BUILDING CLEVELAND 14, OHIO

WANTED

SANITARY ENGINEER

A large American Company in Venezuela requires an experienced graduate Sanitary or Civil Engineer. Must have at least three years' experience in sanitary engineering. Will be required to make inspections and recommendations of sanitation facilities and programs including water supply and treatment, sewerage systems and treatment plants, insect control, slaughter houses, mess halls, etc.

Write giving age, marital status, education, and detailed experience resume.

Box 308-A—Radio City Station
New York 19, New York

STRUCTURAL ENGINEER

With 10 to 15 Years Experience in Reinforced Concrete and Structural Steel Design for Electric Utility Work. Write to

STRUCTURAL ENGINEER
PENNSYLVANIA POWER & LIGHT CO.
Allentown, Pa.

Rare Opportunity

CONTRACTORS ESTIMATING AND BIDDING ENGINEER

Nationally known Southwestern firm constructing dams, locks, tunnels, bridges desires engineer—graduate preferred—with 8 to 14 years heavy construction experience in field and office to work into position of company representative on bidding and joint ventures. Knowledge of costs, plant layout, scheduling and equipment performance essential. Applicants with pleasing personality, good appearance and possessed of a high degree of business acumen favored. Give full physical and personal characteristics — recent photo if available — detailed experience record of past employment, duties and salary, and references who may be contacted.

P-2251, Engineering News-Record
520 N. Michigan Ave., Chicago 11, Ill.

A COURSE OF INSTRUCTION BY MAIL IN
STRUCTURAL ENGINEERING
Fortieth Year
OUR COURSES HAVE HELPED THOUSANDS
to better positions and to pass State Board Examinations
- Complete Structural Engineering Course.
- Public Works Structures.
- Architectural Engineering.
- Special Course C (State Board Exams).
- Reinforced Concrete Engineering.
- Structural Steel Designing.

Monthly payments permissible. Information sent without obligation. WRITE TODAY

WILSON ENGINEERING CORPORATION
College House Offices • Harvard Square • Cambridge, Mass., U. S. A.

FOR SALE
SALISBURY, NORTH CAROLINA
Approx. 10 Acres Desirable Industrial Property Immediately Available
Fronts on Southern Ry. and State Highway
Near Plantation Pipe Line
BO-2281, Engineering News-Record
330 W. 42 St., New York 18, N. Y.

FOR SALE
1—Model 1055LC P&H DRAGLINE
Serial #12207, $65,000
1—D-8 ANGLEDOZER, Ser. #2U903
$15,000—Subject to prior Sale
Located near Altoona, Pa.
CAVALIER COAL CO., INC.
Call Altoona 31036 or Norfolk, Va., 57271
Mail Address: P. O. Box 420, Norfolk, Va.

POSITIONS VACANT

(Continued from page 92)

WANTED—GENERAL Building Construction Superintendent with great experience in handling more than one contract, for permanent job in St. Louis, if satisfactory. Very good salary with chance for bonus at year's end. Needed by Jan. 1, 1952. Write Gamble Construction Co., St. Louis, Mo.

POSITIONS WANTED

SUPERINTENDENT - PROJECT Manager, graduate Civil Engineer 48, contract negotiations, accurate estimator, successful record of customer and labor relations. Top field organization and supervision, layouts, 25 years industrial, dams, hydros power houses, bridge, highway, docks, foundations, cofferdams, piledriving, hotels, chainstore and housing. Foreign service 16 years, Africa, South America, etc. Speaks many languages. Location not important. New York telephone. Wisconsin 7-0200, ext. 893 or write Box PW-2365, Engineering News-Record.

CHIEF DRAFTSMAN—age 40-48 years Drafting-checking stru. steel—light-heavy-Misc.—Interested only in Permanent location. PW-2329, Engineering News-Record.

CIVIL ENGINEER: 30, married. Veteran not subject to recall. Approximately 3 years varied experience, including design of concrete hydraulic structures, surveys, specifications, responsible charge of building construction. Army Experience contracting for supplies and equipment. Will consider any position with a future. Location preferred—West or foreign. PW-2349, Engineering News-Record.

CIVIL ENGINEER — Assoc. M. ASCE; registered Three states; C. E. Degree, 42, married; 17 years experience in industrial plant planning, layout, design and supervision of construction, institutional building design, estimating and specifications; plant engineer's office; office supervision and management. Prefer south or midwest. Available in sixty days. PW-2232, Engineering News-Record.

CONSTRUCTION SUPERINTENDENT, 46, 22 years experience heavy construction—Bridge foundations, powerhouses, floodwalls, cofferdams and highways. Familiar with all heavy equipment. Employed but desire change. PW-2269, Engineering News-Record.

ESTIMATOR-OFFICE Engineer ten years of experience take off, pricing, purchasing and construction planning. PW-2330, Engineering News-Record.

PROFESSOR: REGISTERED Civil Engineer and educator, 39, with advanced degrees and broad background of experience invites correspondence on February or September professorship or department headship. PW-2355, Engineering News-Record.

SELLING OPPORTUNITY WANTED

REINFORCED CONCRETE supt. Building & Heavy constr. Leaving Jan. 1 for Capetown to represent American interests. Will introduce other non-competitive equip. & products, arranging contacts with S. African distributors. Virgin field for metal lath & new plaster products. RA-2027, Engineering News-Record.

WORK WANTED

Small Group of Structural designers and draftsmen available. Experienced in steel and concrete bridges and foundations. WW-2353, Engineering News-Record.

TECHNICAL DRAFTING SERVICE
Architectural, Engineering and Industrial drawings. Tracings, Lettering, Charts, and Graphs. Shop Drawings, Detailing, and Designing. Patents, Trade Marks, Advertising illustrations, etc.
Competent draftsmen, engineers and architects equipped to assist you with drafting problems
A. A. Oliveri R. A. and Assoc., 4046 Grace Ave., New York City (60), N. Y. Tel: Fairbanks 5-8712

SURVEYING INSTRUMENTS
USED • REBUILT • SALE
RENT • REPAIRING

FROM STOCK
Brand New & Rebuilt
TRANSITS & LEVELS
Fully equipped modern shop—all makes and models repaired — all work guaranteed — instruments rented
Midwest Representative: W. & L. E. Gurley
NATIONAL BLUE PRINT CO.
Established 1914.
210 S. Canal St. Chicago (6), Ill.

TRANSITS AND LEVELS
New or Rebuilt
Sale or Rent
Headquarters for REPAIRS — any make — Factory Service. We will also buy your old instruments or take them in trade.
A complete line of Engineering Instruments and Equipment for field or office. Write for catalog N.R. 1-11.
WARREN-KNIGHT CO.
Manufacturers of Sterling Transits and Levels
136 No. 12th St., Philadelphia 7, Penna.

QUALITY REPAIRS
by the makers of the
WORLD'S QUALITY SURVEYING INSTRUMENTS
Since 1871
C. L. BERGER & SONS, INC.
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ALL MAKES
RE-BUILT
REPAIR
RENT
REAL ESTATE EXPERTS
BUFF
69 Day St., New York

SPECIALIZED REBUILDING
of surveying and engineering instruments
All makes and models expertly repaired in modern shop. All work guaranteed
USED REBUILT INSTRUMENTS
for sale or rent
ROY D. HICKERSON
8 N. EDMONDSON AVE. INDIANAPOLIS 19, IND.

WANTED

WANTED
SEMI-TRAILER
Prefer Rogers "T" Drop Deck—25 or 30 Ton. Write Serial No., Specifications, Age, Condition.
N. R. C. CO.
280 Huguenot St. New Rochelle, N. Y.

WANTED TO BUY FOLLOWING STRUCTURAL STEEL
4 pcs. 21" WF x 59 lb. x 35'
5 pcs. 21" WF x 59 lb. x 26'
1 pc. 21" WF x 59 lb. x 20'
16 pcs. 18" WF x 37 lb. x 35'
6 pcs. 6 x 6 H beams x 18 lb. x 14'
WILLIAMS CONSTRUCTION CO.
Box 145 Middle River, Baltimore 20, Md.

WANTED
1½-2 yard Drogline-Crane Combination $25,000.00 cash for best offered. Also ¾ yard Dragline $7500.00 cash for best offered. Send full data, pictures, location units available to
P. O. Box 9271 Houston 11, Texas

Notice to Advertisers

Because of the Thanksgiving Day Holiday, November 22nd, the "Searchlight" pages of the

November 22nd Issue of

ENGINEERING NEWS-RECORD

Close for press earlier than the usual weekly closing time.

The cooperation of advertisers is solicited in forwarding new copy, or changes of copy, to reach us accordingly.

FINAL CLOSING TIME
Display and Undisplayed Ads
Friday, November 9th

PROPOSALS
Thursday, November 15th

DRYER or KILN: Allis Chalmers 10 ft. x 90 ft., heavy duty, plate thickness 22.95 lb. per sq. ft., NEW condition, complete and with or without coal fired Furnace, Western Precipitation Dust Collector, Clarage #41 Exhauster, Motors, Control equipment, etc.

COMPRESSORS: Worthington 2 stage, 29/18-½ x 21, 600 H.P. synchronous motor, 3 phase, 60 cycle, 440 volt, 180 RPM, cap. 3000 CFM, 100 lbs. pressure, complete with auxiliary equipment. In operation now, available immediately. 1—Worthington 15—9-½ x 12", cap. 700 CFM @ 100 lbs., direct connected to 440 volt, 125 H.P. synchronous motor, with all auxiliary equipment.

BOILER: Erie City 150 H.P., ASME, return tubular, 4" tubes, 150 lbs. working pressure, pin hole grates and all fittings.

BOOT BUCKET ELEVATORS: 2—83 ft. ₵₵, manganese steel chain, buckets 18" wide.

SCREW CONVEYOR: 12" x 22 ft. with center bearing, 87 RPM, capacity 30 TPH.

DIESEL MOTOR: 122 H.P. Caterpillar D13-000 complete with clutch, V-belt pulley and spare parts.

DRAGLINE or CRANE: Northwest model 95, new 1949, Murphy diesel, 80 ft. boom, 2½ yd. bucket.

DRAG SCRAPERS: 1—Sauerman 2 yd. Drag Scraper outfit, complete, without 75 H.P. motor. 1—Sauerman, ¾ yd. capacity complete with 30 H.P. motor. 1—Sauerman 1½ yd. capacity complete with 60 H.P. motor.

HOIST, SPECIAL: 1—200 H.P., double drum, 8' dia., 5' face one clutched, one tight, 16,000 lbs. 750 FPM, with or without head frame, cages, skips, etc.

MINE HOISTS: Single and double drum 150 H.P. to 1500 H.P.

CRUSHERS, GYRATORY: Various makes, size 12" x 44" to 42" x 134".

CRUSHERS, JAW: Various makes, 12" x 15" to 48" x 60".

CRUSHERS, REDUCTION: Symons 5½ ft. Cone, short head, fine bowl, with motor, etc., NEW Condition. Symons 2 ft. standard bowl, Cone. Telsmith 2 ft. and 3 ft. Gyrasphere.

A. J. O'NEILL
Lansdowne, Pa.
Phila. Phones: Madison 3-8300—3-8301

SHOVELS

SUBJECT TO PRIOR DISPOSITION

1—Bucyrus-Erie 54B Diesel Standard Shovel completely overhauled, ready to go. Location New Jersey.

Lima Type 120 Loading Shovel, 3½ c.y. Dipper, 28 ft. stick. New 1946. Located Mountain Iron, Minnesota.
Price $37,500

111 M Marion Standard Shovel Attachment, 30 ft. boom, 23'8" Stick, 3½ yd. Manganese Bucket. This item is brand new. Located in Johnstown, Pa. Immediate delivery at considerable less than replacement cost.

Manitowoc model 2000B 1 ¼ c.y. Combination standard shovel and dragline with Caterpillar D-13000 diesel. Good condition.
$22,000 FOB Johnstown, Pa.

1—Bucyrus-Erie 54B HI-Lift Shovel Front with 45' Boom. 32' Tubular Steel Handle, and two c.y. Dipper. Location Johnstown, Pa.

Lima Type 120 Standard Shovel and Dragline, Long Crawlers, Wide Tread, 22' 6" Shovel Boom, 22' Dipper Handle, 3 c. y. Dipper, 80 ft. Dragline Boom complete with fair leads, etc. 1500 KW Light Plant in excellent operating condition. Serial number 52902. Cummins Type L. Diesel, in good operating condition.
$68,000 FOB, Meadsville, Pa.

Four Le Tourneau, model W Scrapers, all in good condition, two rebuilt since last use, 2400x29 tires 75% or better. Location New Jersey.

WILL CONSIDER RENTAL

S.J.GROVES
AND SONS COMPANY
19 Rector Street, New York, N. Y.
WHitehall 3-1055

Prompt delivery is as important to a contractor as to a military man. To get WHAT you want WHEN you want it, order from E. C. A.

AIR COMPRESSORS

Portable 2-Stage

2—500 cu. ft. Ing. Rand, with starter, generator, battery & intercooler, 4 steel wheels. One with 175 HP Waukesha Mdl. GWAK gas eng. Other w.th Mdl. 6WAKH Wauk-Hesselman Diesel engine. For RENT or SALE.

1—315' Ing. Rand, Mdl. 370-A-100, 4 cyl. Mdl. 4-115-LA Wauk. gas eng., 4 steel wheels. Good condition. $2,500

BIN

1—100 ton Blaw Knox Mdl. P-3100, 3-compt. batch bin, 1½ yd. #63B weigh-batcher. For rental only. .....$425.00 per mo.

BOOM

1—50', 60' or 70' Marion 382 crane boom, butt joints, suitable for any make 2 yd. caterpillar crane. $1,500.00

CRANES, CRAWLER

1—1 yd. Northwest Mdl. 4, #3492, 40-80' boom, hi gantry, 15' jib, Mdl. KS Wisc. gas eng. Wt. 74,400#. .....$11,000.

1—¾ yd. Koehring Mdl. 303, Ser. 2139, 40' boom, tagline, Wauk. gas eng. Wt. 42,200#. Available for rental.

CRANE, LOCOMOTIVE

1—25 ton Industrial Brownhoist Type G 40-50-60' boom, 1946 Nat'l. Board Boiler 150#. .....$16,000.00.

CRUSHER

1—12"x20" Acme Crusher Style A, weight 9800#. Special price "as is"....$375.00.

HOISTS, ELECTRIC

1—50 HP Mundy 2/drum, National 2-spool attached swinger, 3/60/440 slipring motor, 7000# @ 195 FPM. Wt. 12,000#. $4,000.

1—55 HP Thomas Class A, 2/drum 3/60/220/440 slipring motor, 5000# @ 300 FPM. Weight 9500#.....$2,750.

4—75 HP 3/drum American 3/60/220/440. LIKE NEW. .....$6,000 each.

LOCOMOTIVE

1—7 ton 36 ga. Porter Hercules Mdl. G, gas eng., starter & generator, 4900# drawbar pull. .....$3,000.

MIXERS, 2 YD. CONCRETE

2—565 Koehring stationary, 40 HP G. E. squirrel cage motors, 220/440/60/3.

HEATING EQUIPMENT

BOILERS—FROM 6 to 100 HP, portable, vertical, & locomotive type, both hi & low pressure, complete.

HOT WATER HEATERS—Oil burning, coke burning & torch type, complete.

SALAMANDERS—300 Brand New DANCO Oil Burning Salamanders, immed. shipment.

Partial List only — Please let us quote on your requirements.

CLIFTON HEIGHTS 3, PA. (Suburb of Philadelphia) MA dison 6-2200
30-J Church St. NEW YORK 7, N. Y. Phone Worth 2-0036

1155 So. Washtenaw Ave. CHICAGO 12, ILL. Phone NE vada 8-2400
P.O. Box 933-J PITTSBURGH 30, PA. Phone Federal 1-2000

EQUIPMENT CORPORATION of AMERICA

SALE OR RENT

1—Burro Gas Rail Crane.
1—Koehring 304 Truck Crane.
1—Lorain MC 414 Truck Crane—1948.
1—¾ Lorain 41 Comb S&D. 1948.
2—#6 and 80D NW Shovels.
2—10 Ton steel Stiff Leg Derricks.
1—6 Ton Huber 3W Roller.
2—Mod. 3500 & 4500 Manitowoc Draglines.
1—45' Crane Boom for Link Belt LS90.
1—D8 Bulldozer 2U Series.
1—801 Koehring Shovel & Crane.
1—40 Ton Industrial Oil Fired Loco Crane 1943.
1—10 Ton Std. Ga. Diesel Loco.

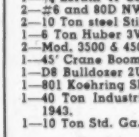
B. M. WEISS CO.
Girard Trust Co. Bldg. Phila. 2, Pa.
Rittenhouse 6-2311

LOCOMOTIVES
1—Brookville 10T-30" Ga. Diesel—Like New.
2—Whitcomb 15 Ton, 36" Ga.—Diesel.
2—Davenport 10T-36" Ga., Diesel.
1—Brookville—15 Ton—Diesel—Stdy.—Ga.
Plymouth—70 Ton—Std. Ga.—Propane Electric.

LOCOMOTIVE CRANES—STEAM
1—Ohio—30 Ton Coal Fired, Excellent.
Industrial—50 Ton—New 1947—Like New. Boom 120.

MISCELLANEOUS
21—Hopper Cars—15 Ton—16" Ga.
Burro Mod. #10 Loco. Crane—Gas—2½ Ton—30' Boom.
Burro Mod. 15—5½ Ton—Gas.
Burro Mod. 20—5½ Ton—Gas.
2—American 3-Drum Gas Hoist—185 HP. Like New
1—Mundy D. D. Elect. Hoist—300 HP—2200/3/60.
1—Flory D.D. Slope Hoist—150 H.P.—3/60/220.
Wellman D.D. Mine Hoist—700 H.P.—3/60/2200.

R. H. BOYER
2005-13 W. Bellevue St. Phila. 40, Pa.
Phone Sagamore 2-7132



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NEW OR FACTORY REBUILT
FOR SALE • • • FOR RENT
327 N. BELL AVE., CHICAGO, ILL.

NEW and REBUILT
STORAGE BATTERY
LOCOMOTIVES
1½ to 10 Ton — 18" to 56" Track Gauge
GREENSBURG MACHINE CO.
Greensburg, Penna.

PORTABLE COMPRESSORS

Sales—Rental

Rental Purchase

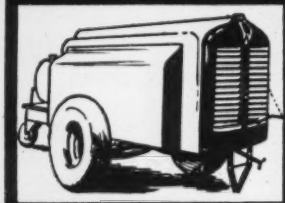
15 CFM LINDSAY (Gas) 2 Pneu
25 CFM LINDSAY (Gas) 2 Pneu
60 CFM INGERSOLL (Gas) 2 Pneu
60 CFM CHICAGO (Gas) Skids—2 Pneu
105 CFM WORTHINGTON (Gas & Diesel)
105 CFM INGERSOLL (Gas) 2 & 4 Pneu
160 CFM WORTHINGTON (Gas) Skids—4 Pneu
210 CFM WORTHINGTON (Gas & Diesel) 3 Pneu
210 CFM GARDNER DENVER (Gas) Skids 4 Pneu
315 CFM INGERSOLL (Diesel) 4 Pneu
315 CFM WORTHINGTON (Gas) 4 Pneu
315 CFM LeROI (Gas) 4 Pneu
500 CFM WORTHINGTON (Diesel) 4 Pneu

RENT—SELL—BUY

Stationary—Portable
Electric—Steam—Gas—Diesel
All sizes—All makes

SELECT REBUILTS—AMERICAN

American Air Compressor Corp.
Dell Ave. & 48th St., North Bergen, N. J.
SINCE 1902



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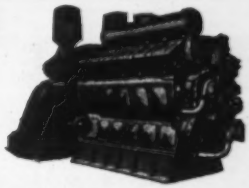

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1250	General Motors	16-278A	1600	720	312	General Motors	8-268A	480	1200
937.5	General Motors	12-567	1080	720	312	Clark	MD-4	375	327
625	Alco	6-12¼x13T	780	600	125	General Motors	3-268A	180	1200
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New York 17, N. Y.

Albright & Friel, Inc.
Consulting Engineers
Water, Sewage and Industrial Waste Problems. Airfields, Refuse Incinerators, Power Plants, Industrial Buildings, City Planning, Reports, Valuations, Laboratory.
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Frederick H. Dechant
Consulting Engineer
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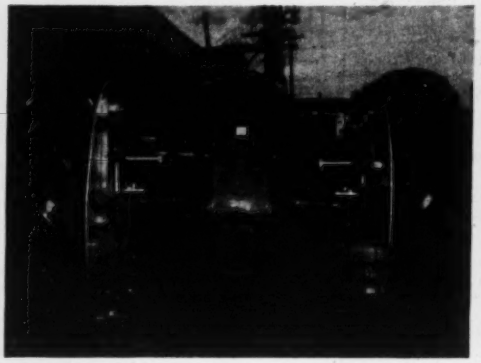
Frederic R. Harris Inc.
Water Works, Industrial Wastes, Sewerage, Sewerage Processes, Hydraulic Works, Gas Plants
Phila.: Fidelity Phila. Trust Bldg.
New York: 87 William St.

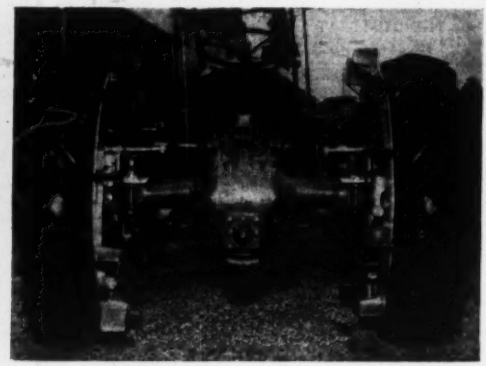
Inspecting and Testing

Johnson Soils Laboratory
Engineering design and construction tests run from MOBILE LABORATORY UNITS at construction site. Field load bearing tests.
4595 Palisades Ave., New York 63, N.Y.
Kingsbridge 3-5727

NEW PRODUCTS



IN—This end view shows how far the lug and circle are inside the circumference of a tire, and further shows how it does not interfere on paved or hard surface roads for high-speed travel.



OUT—Here the lugs are extended in which position it is easy to see how much added traction is given. Center guards have been removed for pictorial purposes only.

Retractable lugs for rubber-tired tractors

The first answer to traction on any type vehicle and its ability to develop the utmost drawbar pull has been reliance on the ground pressure or weight, and when the horsepower is transferred to the drive wheels, their contact with the ground can only be measured by the weight thereon. When the horsepower overcomes this, however, the wheels and tires immediately start creeping or slipping as the load increases. Tire manufacturers have done much to develop tread designs that tend to bite into the earth, but in so many cases these work only to a certain point before slippage occurs.

This slipping causes terrific wear on the tread of the tire, increases the hazards of punctures and tire damage, cuts down the travel speed of a tractor and consumes excessive fuel as well as putting an extra strain on all working parts of the tractor.

After experimenting with different kinds of hand-bolted lugs, blocking and jacking of tractors etc; the manufacturer finally came up with these new Power Set lugs which eliminate the need for tire chains, wheel weights, anti-freeze solutions and the like. The lugs are continually on the tractor wheel where, by setting one small lever, they are instantly in working position, and by the same method are just as quickly retracted to inactive position, where they remain out of the way for hard surface off highway travel. The lugs operate independently of each other on the respective wheels, therefore either wheel can run on pavement while the other is off in soft material where the lugs can be extended for full traction.

They require no grease and have no constantly moving parts. When set for either in or out position, everything turns with the wheel and not one single part turns or works again, thus eliminating any wear. The in-out lever needs no continued application of power to hold lugs in working position. Lever and brake are applied just long enough to cause arms to go out or in where they will stay until changed again. The manufacturer claims that they are so constructed that they will penetrate the ground and not cause a tractor to ride up on them, causing jolting and uncomfortable operating conditions. In the case of a puncture, the tractor can readily be driven to a repair shop or garage on the steel rim without allowing the tire to be ruined from this procedure. RETRACTABLE POWER-SET LUG CO., P. O. Box 983, KILGORE, TEXAS.

Compressor rated at 365 cu.ft.

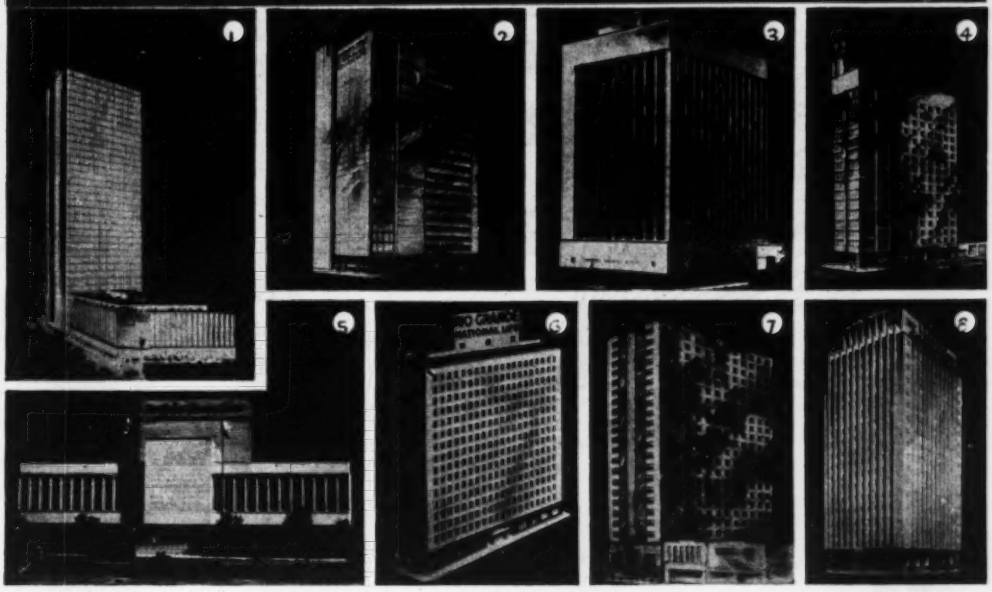
Highway, heavy construction contractors, and quarry operators now have available for their use the New Standard Model 365 air compressor, manufactured by Jaeger Machine Co., Columbus, Ohio.

The new compressor, rated at 365 cfm of air at 100 psi pressure, utilizes a 165-hp. Cummins diesel. Engine operating speed of the compressor unit is 1240 rpm. The wagon has an "autosteer" front axle, and is rated for safe towing at 35 mph on rough roads. Steel wheels or skid mountings are optional.

The complete unit is 12 ft. 3 in. long, 5 ft. 10½ in. wide, and 6 ft. 9 in. high. It weighs 8,500 lb. The Cummins engine is a 6-cylinder full diesel, with a displacement of 743 cu. in. For additional information write either CUMMINS ENGINE CO., INC., COLUMBUS, INDIANA or JAEGER MACHINE CO., COLUMBUS, OHIO.

(Continued on page 102)

These newcomers push the DALLAS SKYLINE UP . . .



BYERS WROUGHT IRON PIPE holds maintenance DOWN!

Here's a lineup of eight newcomers to the Dallas Skyline that upholds the Texas reputation of doing things in a big way. The fact that the job is being done in the *best way* is suggested by the selective use of Byers Wrought Iron pipe in a variety of services. Here's the breakdown:

1. REPUBLIC NATIONAL BANK BUILDING—Medium pressure steam returns; hot and cold water lines 4" and over; soil, waste and vents 2½" and smaller. Architects: Harrison and Abramovitz, New York. Associate Architects: Grayson Gill and George F. Harrell, Dallas. Engineers: Jaros, Baum & Bolles, New York, and Zumwalt and Vinther, Dallas.

2. FIDELITY UNION LIFE INSURANCE CO. BLDG.—Fire lines, air conditioning condenser and chilled water lines, and hot and cold plumbing lines over 2". Architect and Engineer: Wyatt C. Hedrick, Dallas.

3. EMPLOYERS INSURANCE BUILDING—Downspouts, steam returns, air conditioning condenser water lines, vents 2" and smaller. Architect and Engineer: George L. Dahl, Dallas.

4. CORRIGAN TOWER—Downspouts, fire lines, and condenser and chilled water lines 2" and larger in air conditioning system. Architect and Engineer: Wyatt C. Hedrick, Dallas.

5. DALLAS MORNING NEWS BUILDING—Steam returns, downspouts, vents 2" and smaller, condenser water lines in air conditioning system. Architect and Engineer: George L. Dahl, Dallas.

6. RIO GRANDE NATIONAL LIFE BUILDING—Air conditioning condenser water lines. Architects: Grayson Gill and George F. Harrell, Dallas. Engineers: Zumwalt and Vinther, Dallas.

7. ADOLPHUS HOTEL ADDITION—Fire lines, downspouts, and air conditioning condenser water lines. Architect and Engineer: Wyatt C. Hedrick, Dallas.

8. GIBRALTAR LIFE BUILDING—Steam returns, gas lines, downspouts. Architects and Engineers: Thomas, Jameson & Merrill, Dallas. Mechanical Engineers: Landauer, Guerrero and Shafer, Dallas.

Every one of these services carries a corrosive threat—and every one represents a time-tried genuine wrought iron application. The reason for the unusual durability of genuine wrought iron comes from its unique composition. Tiny threads of glass-like silicate slag, threaded through the body of high-purity iron, halt and disperse attack, and so discourage local pitting. The fibers also anchor the initial protective scale, which shields the underlying metal.

You'll find some helpful information in our bulletin, WROUGHT IRON FOR PIPING SYSTEMS. Write for a copy.

A. M. Byers Company, Pittsburgh, Pa. Established 1864. Boston, New York, Philadelphia, Washington, Atlanta, Chicago, St. Louis, Houston, San Francisco. Export Division: New York, New York.

BYERS

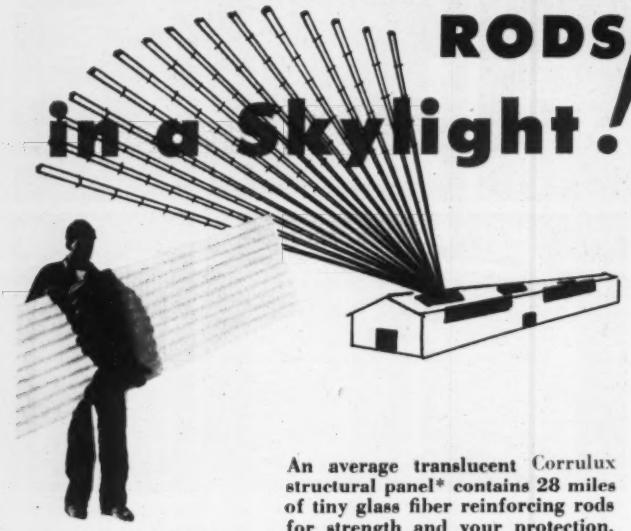
CORROSION COSTS YOU MORE THAN WROUGHT IRON

WROUGHT IRON

TUBULAR AND HOT ROLLED PRODUCTS

ELECTRIC FURNACE QUALITY ALLOY AND STAINLESS STEEL PRODUCTS

28 MILES of REINFORCING RODS in a Skylight!



An average translucent Corrulux structural panel* contains 28 miles of tiny glass fiber reinforcing rods for strength and your protection. Recent developments have made possible production of tiny glass rods with tensile strengths of *over 100,000 psi!*

This reinforcing makes Corrulux shatterproof and strong, ideal for skylighting, sidelighting and partitioning.

Corrulux diffuses daylight for soft, interior lighting without eye strain.

Corrulux nests snuggly with standard roofing and siding . . . nails, drills, bolts and saws easily . . . can be installed by anyone, on standard purlin spacings, without expensive framing and flashing.

Corrulux requires no maintenance . . . resists sun, wind, rain, hail, temperature extremes and virtually all industrial fumes . . . is highly resistant to sharp impact, vibration and shock.

Corrulux cuts skylighting costs up to 50% in new or remodeled plant buildings.

* 10 feet long x 27½ inches wide.

DISTRIBUTORS IN PRINCIPAL CITIES

AVAILABLE IN SIX BEAUTIFUL COLORS FOR

- Ceilings
- Movable Screens
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- Canopies
- Awnings

Corrulux CORP.

Dept. D, P. O. Box 20,026, Houston 25, Texas

Please rush FREE literature and name of my nearest distributor.

Name_____

Title_____

Company_____

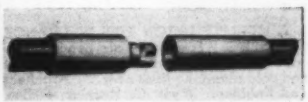
Address_____

City_____ State_____

New Products . . .

Life-save vest

Here is a new type vest, especially designed for bridge workers, dock workers, shipbuilders and others working above water, where the danger of drowning is ever-present. The vest's outside covering is a strong, closely woven drill cloth; filling is of high quality kapok, having a buoyancy of 30 to 35 times its own weight. Five to six times more buoyant than cork, 16 ounces of it is said to support a heavy man in water. As shown in the photo, the vest has been designed to permit free use of arms, and is well ventilated and very practical for year round use. Workers who have tried the vest say that the flexible waist line assures fit and comfort when bending over or sitting down. There are no metal parts to corrode or rust, and the vest is colored orange for high visibility. Complete information obtainable from INDUSTRIAL PRODUCTS COMPANY, 2989 NORTH FOURTH STREET, PHILADELPHIA 33, PENNSYLVANIA.



Welding cable connector

is made of solid brass, perfectly machined to a smooth sliding fit. The design consists of a double cam principle, where one cam exerts pressure parallel to the axis of the connector, the other perpendicular to the axis. Contact approaching the 600 pounds per square inch needed for minimum

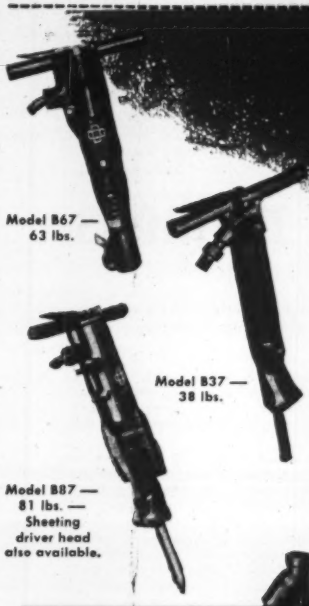
(*Continued on page 105*)

SHORT
WHERE IT COUNTS
...LONG
ON QUALITY

Model B67 — 63 lbs.

Model B37 — 38 lbs.

Model B87 — 81 lbs. — Sheeting driver head also available.



New Sump Pump Dependability

The VP4 Sump Pump is designed on a new principle of *Top-Suction* — won't bury itself in a muddy sump. Top-Suction also pulls gritty water away from the shaft seal — protects the seal, shaft and motor from wear — sharply reduces maintenance. "One-shot" lubrication oils entire pump for 24 hours of service.

Shorter from tool-top to handle, Gardner-Denver Paving Breakers are easier to hold! Your men move about the job faster and safer, too — thanks to the exclusive Gardner-Denver safety latch that works like the safety on a gun.

And here are some of the quality *extras* that make these breakers powerful "busters" on your demolition jobs:

Automatic short throw valve — virtually unaffected by wear.

Non-freezing exhaust — maintains top efficiency on cold, damp days.

Renewable chuck liner — protects both tool and breaker against loose-fitting shank.

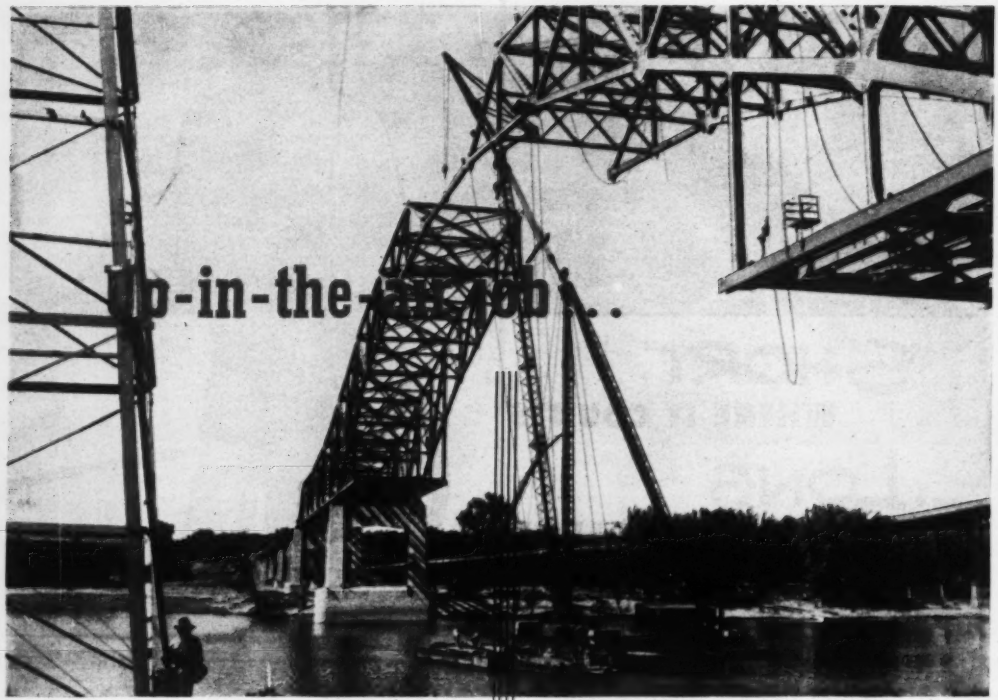
Integral oil reservoir — insures proper lubrication to all working parts.

SINCE 1859

GARDNER-DENVER

Gardner-Denver Company, Quincy, Illinois
In Canada: Gardner-Denver Company (Canada), Ltd., Toronto, Ontario

THE QUALITY LEADER IN COMPRESSORS, PUMPS AND ROCK DRILLS



Bridge over the Mississippi River, Hastings, Minnesota, 2600 tons fabricated and erected.

built by down-to-earth methods

saves you money, saves you time!

3 HUGE FABRICATING PLANTS OPERATE AS A UNIT

- Clinton Bridge Corporation
- Gage Structural Steel Corporation
- Midland Structural Steel Corporation

The bridge you see here in the course of construction is over the mighty Mississippi River at Hastings, Minnesota.

Have you noticed what's different about the erecting technique? Sure you have . . . it's the speedy water-level method of raising and joining the members, instead of the usual slow inching of erecting derricks over newly laid sections at the bridge floor level.

Exclusive construction innovations, with modern fabricating short cuts which can be carried on simultaneously in 3 plants operating as a huge manufacturing unit, combine to save you time and money.

Our engineering-estimating department would like to quote on your jobs wherever fabricated structural steel is specified. Send your plans and specifications to us.

ALLIED STRUCTURAL STEEL COMPANIES

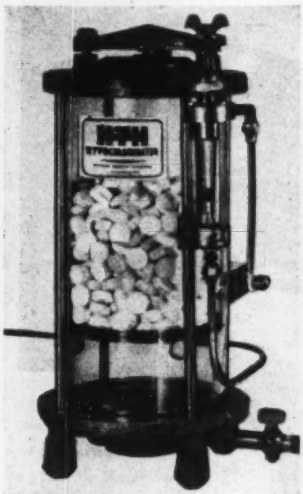
Engineers • Fabricators • Erectors

20 N. WACKER DRIVE CHICAGO 6, ILLINOIS

Fabricators and erectors of structural steel for highway and railroad bridges; industrial, office, school, and government buildings; Airport structures; Harbor facilities.

New Products . . .

resistance is thereby obtained. These CAM-LOK connectors are completely interchangeable with heavy duty types and with general purpose connectors. Long runs of cable can be graduated from 4/0 down to a light Whip End for maximum flexibility and minimum voltage drop. The manufacturer claims that no adapters or reducers are needed with this new type connector. Further details are contained in the company's Technical Bulletin No. 101-W-13. CAM-LOK DIVISION, EMPIRE PRODUCTS, INC., CINCINNATI, OHIO.



New method for chlorinating water

Here is a unique product-equipment combination by which dry chlorine can be accurately metered. It has been designed for applications where a slow steady release of available chlorine is desired. The equipment consists of a specially engineered feeder, called a Hypochlorinator, designed to dissolve tablets and dispense the resultant available chlorine solution at rates which can be accurately controlled and quickly varied to cover a wide range of operating demands. Known as HTH (high test calcium hypochlorite), it can be easily and quickly installed and does not require the attention of engineers or technical personnel.

The Hypochlorinator takes water from the high pressure point of a system at a rate controlled by a needle valve and indicated by a flow meter. It injects it into a tablet bed resulting

(Continued on page 107)

Going up...
The time-pressed men who build the machines that build America . . . and the men who operate them . . . all prefer to put horsepower to work with Twin Disc Clutches or Hydraulic Drives. You see the proof in the blue-book list of Construction Equipment Manufacturers who rely on Twin Disc for these vital connecting links. For, wherever you hear the throbbing roar of heavy-duty engines, just as wherever you hear the steady drone of production machines, Twin Disc Friction Clutches and Hydraulic Drives are a standard measure of performance. That's why Twin Disc is so important to America's productive might.
. . . and TWIN DISC applies the production-power!
This is a Twin Disc Friction Power Take-Off, a husky that you find putting as much as 650 hp to work in heavy construction machinery. It's just one type of unit manufactured by the Twin Disc, biggest supplier of all in the industrial clutch field.
TWIN DISC
CLUTCHES AND HYDRAULIC DRIVES
TWIN DISC CLUTCH COMPANY, Racine, Wisconsin • HYDRAULIC DIVISION, Rockford, Illinois
BRANCHES: CLEVELAND • DALLAS • DETROIT • LOS ANGELES • NEWARK • NEW ORLEANS • SEATTLE • TULSA

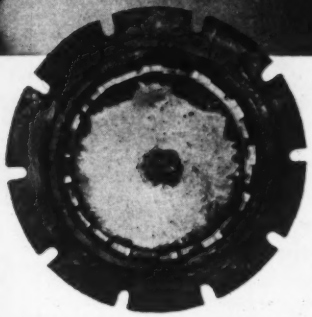
It's easy to tap!

LOCK JOINT
CONCRETE PRESSURE PIPE

Lock Joint Pressure Pipe of any design may be tapped easily and economically for the purpose of establishing either large connections or small service outlets. With the aid of a few simple instructions, any experienced service crew can apply the modern tapping technique which permits the making of connections in concrete pressure pipe while the line continues to operate under pressure.

Although, for many years, taps have been made successfully in concrete pressure pipe, today's efficient equipment and modern methods now make it possible to tap Lock Joint Concrete Pressure Pipe with even greater economy of time, money and effort, and without sacrificing strength.

At your request we would be glad to send you our booklet outlining the simple steps required in making a pressure tap in Lock Joint Concrete Pressure Pipe.



LARGE PHOTO: Tapping a 16" outlet in a 36" pipe at Wayne County, Michigan.

SMALL PHOTO: The pilot drill of the tapping machine withdraws the concrete core, making a clean cut, and leaving no obstruction within the pipe line.

Lock Joint Pipe Company for over forty years has specialized exclusively in the manufacture of reinforced concrete pipe for water supply and transmission mains as well as for sewers, culverts and subaqueous installations.

LOCK JOINT PIPE COMPANY

Est. 1905

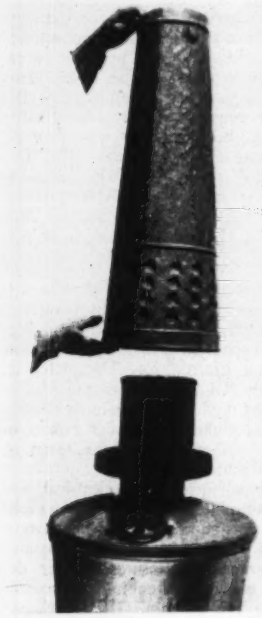
P.O. Box 269, East Orange, N. J.

PRESSURE PIPE PLANTS: Wharton, N. J., Turner, Kan., Detroit, Mich.

BRANCH OFFICES: Casper, Wyo. • Cheyenne, Wyo. • Denver, Col. Kansas City, Mo. • Valley Park, Mo. • Chicago, Ill. • Rock Island, Ill. Wichita, Kan. • Kenilworth, N. J. • Hartford, Conn. • Tucumcari, N. Mex. Oklahoma City, Okla. • Tulsa, Okla.

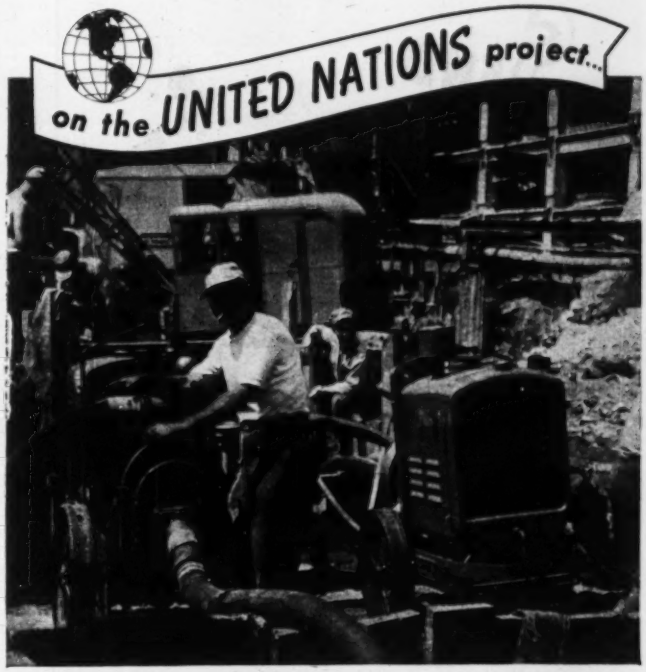
New products . . .

in a chlorine solution which is returned to the system at a low pressure point. Since the body of the unit is transparent plastic, the operator can tell at a glance when refilling is necessary. Only 17″ high and 8″ in diameter, it has no moving parts. The standard model is designed to produce up to 6 pounds of chlorine from a single filling. MATHIESON CHEMICAL CORPORATION, MATHIESON BUILDING, BALTIMORE 3, MARYLAND.

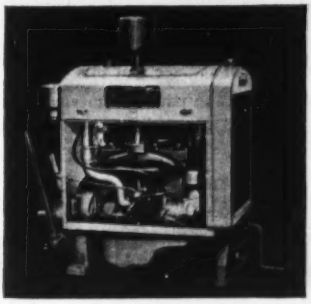


Salamander features flame spreader

The salamander shown above looks similar to other oil-burning salamanders, but according to its manufacturer, it operates quite differently. It has a flame spreader inside the stack and the stack has horizontal louvers. This causes it to burn in a rapid spinning spiral, he says, around the flame spreader. It is further said that this action results in far greater heat at the base of the stack—giving increased sideward radiation, and also greatly reducing the escape velocity of gases going out the top. A distilling type, it has no wicks, jets, or valves. One filling should burn from 10 to 20 hours. Designed for use as temporary heat inside or out of doors. Heat output is reported at 100,000 BTUs per hour on ¾ of a gallon of fuel oil. CALIFORNIA HEATER COMPANY, POMONA, CALIFORNIA.



WAUKESHA



POWERS the PUMPS

Waukesha FCU Power Unit—4-cylinders, 3¼-in. bore x 4-in. stroke, 133 cu. in. displ.

● So that the contractors may constantly keep the jump on the job, you find Waukeshas keeping on steadily and sturdily, putting out the power for the pumps. Here, it's the United Nations construction project in New York; Fuller-Turner-Walsh-Slattery are the contractors. These are Marlow 421-2 self-priming centrifugal pumps, with Model FCU Waukesha Power Units, because dependable pumps demand equally dependable power.

Structurally rigid, with moving elements finely balanced, the FCU is smooth and responsive. Crankcase-cylinder block is one unit. Drop-forged extra large crankshaft has three 2⅛-in. bearings. Pressure oiled, pump-cooled, has built-in centrifugal governor; controlled turbulence combustion for extra power on less fuel. Send for Bulletin 1498.

153

WAUKESHA MOTOR COMPANY, WAUKESHA, WISCONSIN

NEW YORK TULSA LOS ANGELES

America Needs Steel —and *YOU* can help!

America is sending out an urgent call for scrap! The greatly increased steel production necessary to meet today's emergency is requiring more scrap than it is getting—much more. Here's where you can play an important role. Look around your plant. Chances are, in some half-forgotten corner, there's a pile of idle, dust-covered steel scrap. Organize a salvage program . . . see that this vital material gets back to the mills. Take part in America's future—*get in the scrap!*

LACLEDE STEEL COMPANY
St. Louis, Mo.

Stang WELLPOINT SYSTEM

The Stang System has proved its efficiency and economy on both large and small jobs all over the United States. Stang engineering and supervision in planning, installation and operation insures a DRY JOB at all times.

DRY

JOHN W. STANG CORPORATION
2 Broadway, New York 4, N. Y. — 2123 S. 56th St., Omaha, Nebr. — 8221 Atlantic Ave. — P. O. Box 611, Bell, Cal.

MANUFACTURERS' PUBLICATIONS

A-C pedestal mounted pumps—Capacities to 1200 gpm—heads to 250 ft—temperatures to 500 deg F—these are the figures mentioned in a 6-page folder describing Allis-Chalmers chemical pumps, designed and built especially to meet the problems of temperature, corrosion and contamination encountered in the chemical and petroleum industries.

Six alternate sealing arrangements are shown and dimensions and specifications of the pump, available in capacities to 1200 gpm, are given. Two sizes of pedestal assembly cover the entire range of pump sizes. Shafts, sleeves, bearings, and miscellaneous hardware are all interchangeable. The bulletin is No. 52B7638, available from ALLIS-CHALMERS MANUFACTURING COMPANY, 1018 SOUTH 70th STREET, MILWAUKEE, WISCONSIN.

Packaged electric power—A new 24-page bulletin on packaged electric power for industry's third (and biggest) expansion is now available from General Electric Co. Designated as Bulletin GEA-5600, the publication outlines methods of obtaining electric power equipment for quick expansion at low cost and with a minimum of critical materials.

Use of "packaged" electrical systems simplifies plant engineering problems, cuts equipment and installation costs, conserves vital materials and manpower, and insures quicker delivery of electrical equipment, according to this bulletin. The "package" units, comprised of standardized components, eliminate the need for individually-engineered assembly of piece-meal components. Each package is a complete, factory-assembled unit designed for a specific job and ready for operation the moment it is delivered. GENERAL ELECTRIC COMPANY, SCHENECTADY 5, NEW YORK.

Plastic rock flooring—Publication of a completely new 8-page brochure on plastic rock flooring was recently announced by United Laboratories, Inc. The new booklet contains a combination of information on how and where to apply Plastic Rock Flooring over wood, steel or concrete. Certain technical data is included about the product itself.

Many typical flooring applications are illustrated in the brochure showing the product applied on railroad platforms, service floors, trucking

(*Continued on page 111*)

with AMCRECO PRODUCTS

Timbers • Piles • Planking

Framed Bridge Timbers

Poles • Cross Arms • Conduit

Adzed and Bored Cross Ties

Bridge Ties

When you use Amcreco creosoted materials for bridge construction, you gain the double advantage of speed and economy. Framed bridge timbers go up faster and Amcreco's tried and proven pressure creosoting methods provide low first cost and minimum maintenance expense. On your next bridge job plan to take advantage of this double-barreled benefit. Amcreco engineers will be pleased to assist in every way possible. Write for full information, today.

AMERICAN CREOSOTING COMPANY

INCORPORATED

COLONIAL CREOSOTING COMPANY

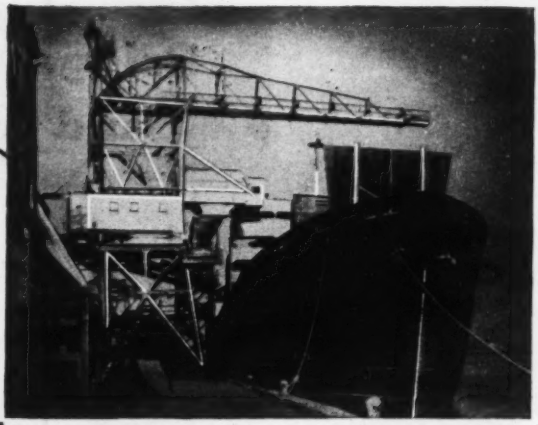
GEORGIA CREOSOTING COMPANY

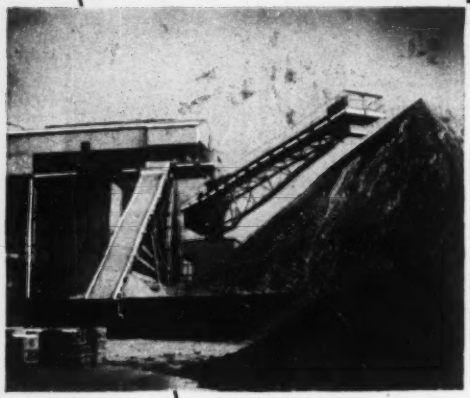
LOUISVILLE, KENTUCKY

SHIP

TO SHORE

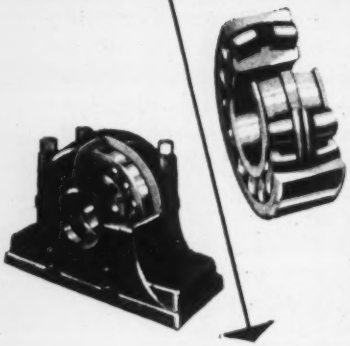
TO STORAGE





...600 GROSS TONS PER HOUR

The unloading tower and boom stacker, built by Derrick & Hoist Co., Inc., for a large New Jersey Plant, are just about the ultimate in modern, mechanized materials handling. The machines are a composite design of unloading tower and a revolving crane operating a large digging bucket, and a new type stacker with belt conveying and distributing equipment. The equipment handles 600 gross tons per hour . . . and heavy loads and brute punishment are "taken in stride" by SKF Pillow Blocks and Spherical Roller Bearings in the boom hoist and swinger, in the foot block of the stacker and in the conveyor drive.



Builders of all types of materials handling cranes for all industries rely on SKF. They recognize SKF dependability under all service conditions, SKF ability to supply the right bearing for the right place. 7259

8 REASONS WHY SKF IS PREFERRED BY ALL INDUSTRY

integrity
craftsmanship
metallurgy
tolerance control
surface finish
product uniformity
engineering service
field service

SKF

BALL AND ROLLER BEARINGS

* For detailed information, write 24-16 Bridge Plaza, South, Long Island City 1, New York.

SKF INDUSTRIES, INC., PHILADELPHIA 32, PA.
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Manufacturers Publications . . .

aisles, stair treads, loading platforms, roofs and ramps. Highlighted in the literature is use of this flooring for resurfacing traffic areas subjected to heavy foot and wheel traffic.—UNITED LABORATORIES, INC., CLEVELAND 12, OHIO.

Wood preservatives—A new member of the fungun-ban family is announced by the Wilbur & Williams Co. This is a copper napthanate dip for wood to be exposed to immersion in water. The product imparts a green color to the wood, indicating that it has been treated, and gives primary protection against dry rot. The booklet explains that the preservative treatment can be painted over with ship paint or normal paint after 24 hours drying as it is of a non-crystallizing nature in itself. Made to meet federal specifications, the product supplements others made by the company, including products of dimensional control, toxic control for wood preservation, and others. THE WILBUR & WILLIAMS COMPANY, 130 LINCOLN STREET, BRIGHTON, BOSTON 35, MASS.

Heavy-duty Federal trucks—A new illustrated bulletin is available showing the Federal line of heavy-duty motor trucks. The bulletin illustrates many types of heavy-duty vehicles available, including six-wheelers. It also has sections covering Federal gasoline and diesel engines, special heavy-duty construction features and specifications on the complete line. FEDERAL MOTOR TRUCK COMPANY, DETROIT 9, MICHIGAN.

Supair Thermal engine—Bulletin 191 is a 2-color, 12-page affair describing and illustrating the Nordberg Supair thermal engine, a 4-cycle diesel, dual-fuel or spark-fired gas unit with the ability to produce, in any given size, one-third more horsepower "than the conventional turbo-charged engine." Actual comparative test data contained in the bulletin shows the advantages of this engine, principal of which are the engine's increased horsepower and thermal efficiency. NORDBERG MANUFACTURING COMPANY, MILWAUKEE 7, WISCONSIN.

"Worried About Rust"—is the title of a 4-page folder telling how OSCHO, a metal primer applied directly over rusted surfaces, stops rust and primes metal for paint. Advantages, prices, containers, and other interesting information are all covered in this illustrated folder. RUSTICIDE PRODUCTS COMPANY, 3125 PERKINS AVENUE, CLEVELAND 14, OHIO.

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AASHO pledges aid to scrap drive, but wants more steel for highways

By J. Roland Carr
Associate Editor

Present conditions under which the states must rehabilitate and reconstruct their highway systems are untenable—due chiefly to the lack of critical materials and low priorities on construction equipment.

This was emphasized in resolutions adopted at the closing session of the American Association of State Highway Officials' recent meeting in Omaha (See p. 47, ENR, Nov. 1 for a report on activities earlier in the meeting).

• **Want 2% of all steel**—Specifically, the AASHO wants at least 2% of the total national production of steel to be allotted for highway and bridge construction. These needs have been determined by the various states, in cooperation with the Bureau of Public Roads.

At the same time, the unusually severe curtailment of critical materials (chiefly steel products) has aggravated the situation almost to the point of paralyzing the highway system. The association plans on keeping the public fully informed just why necessary critical materials are not forthcoming for the essential rehabilitation of our highway system in the interest of national and civil defense, and in the interest of national economy.

By unanimous vote the association endorsed continuation of the BPR as claimant agency for highway construction materials. It opposed, however, the granting of continuing authority to some 50 trucking companies—whose applications are pending before the Interstate Commerce Commission—for the promiscuous transportation of dangerous explosives and ammunition over streets and highways.

• **All-out scrap drive**—Through its several member state departments the AASHO will launch an all-out scrap drive. All state, county and city highway departments will be urged to make an immediate survey of all dormant ferrous and nonferrous scrap available within the departmental operations; and to encourage its flow into proper processing channels.

In its final resolution the association voted to take a more active interest in water resources development, as it affects highways. Specifically, it hopes to secure the enactment of legislation authorizing the preparation and evaluation—on a nationwide basis—of information showing the impact of water resources projects upon highway transportation and development.

These data will include such items as the over-all effect of horizontal and vertical navigational clearances for highway bridges; dam and reservoir construction; and withdrawal of public lands for future power development.

• **Spring break-ups**—If roads located in cold weather areas are to carry full legal loads throughout the year one of two things must be done: (1) provide additional strength in their design and construction to take care of the weakening effects of frost action on the subgrade or (2) restrict the use of the roads in order to prevent serious damage during the spring break-up.

These points were brought out in the sixth annual progress report of the association's Maintenance Committee, by C. L. Motl, maintenance engineer, Minnesota State Highway Department. Other highlights of the report—which will be presented in full at the Highway Research Board meeting in Washington, D. C. next January—include:

Subgrade tests, by the cone-bearing method, conducted by the North Dakota State Highway Department over the past three years disclose the following: Roads in that state have consistently shown a loss of carrying capacity after the frost has left the ground during the spring. This is followed by a gradual recovery during succeeding months.

Highway subgrades in North Dakota also have suffered a general loss in carrying capacity during the past three years. This may be attributed to the unusually wet seasons during that period.

All 8 member states of the committee reported a growing awareness—both public and political—toward the need for better load control on the highways. There is an increasing alarm concerning the damage from overloaded trucks, which may very well establish a trend in the public attitude to holding loads at present allowable limits; or possibly demanding some reduction.

• **Other highway problems**—That the highway administrators, designers and builders are beset with an unusual number of problems was evident throughout other technical sessions. To mention only a few: Many highway laws are archaic, demanding careful investigation and correction . . . states should encourage legislation to raise the standards of design, construction and maintenance on municipal, county and township roads . . . better engineering management is needed in some local units of highway administration . . . some access and military roads are becoming unsafe, while serious bottlenecks are developing around heavily concentrated defense areas . . . the biggest pinch on steel for highway construction is in our larger urban areas, thus threatening to retard industrial expansion . . . greater interest should be promoted among all the states in this country toward greater uniformity of laws controlling weights, dimensions and penalties for overloading . . . some state highway departments believe their urban highway construction programs are becoming so important as to warrant setting up a separate urban division within the department; but others believe this to be unnecessary . . . highway engineers should anticipate their requirements for maps needed to locate highways and make them known to the map makers two to three years in advance of location studies . . . inventories by states of their federal-aid highway needs should be continued on a uniform basis both for the scrutiny of Congress and the individual state's information . . . and sufficiency ratings as a measurement of highway needs should be assigned without regard to political influence, route number or geographical location.

Ohio Turnpike delayed

Start of construction on the Ohio Turnpike next spring may be delayed by the steel shortage, it was disclosed last week. The state highway department said its request for 72,810 tons of structural steel for the job has been turned down by the bureau of public roads.

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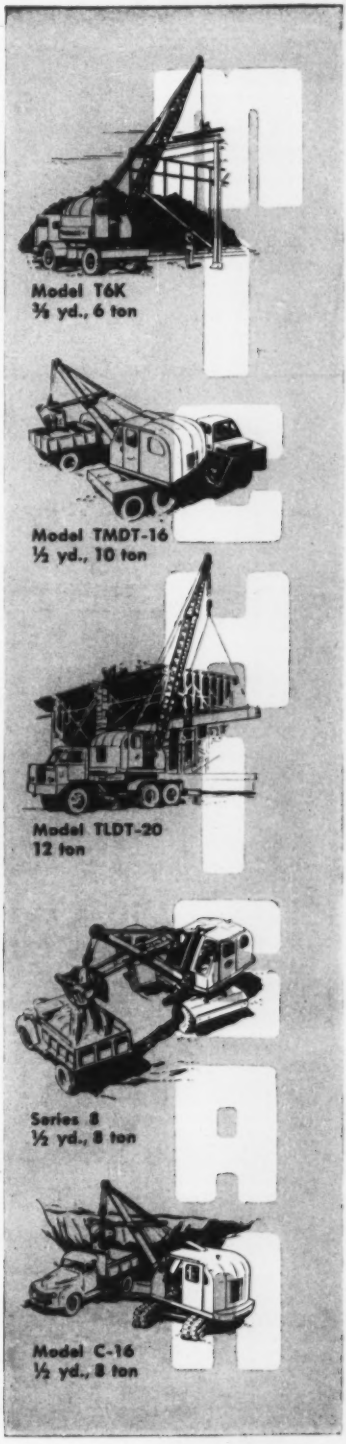

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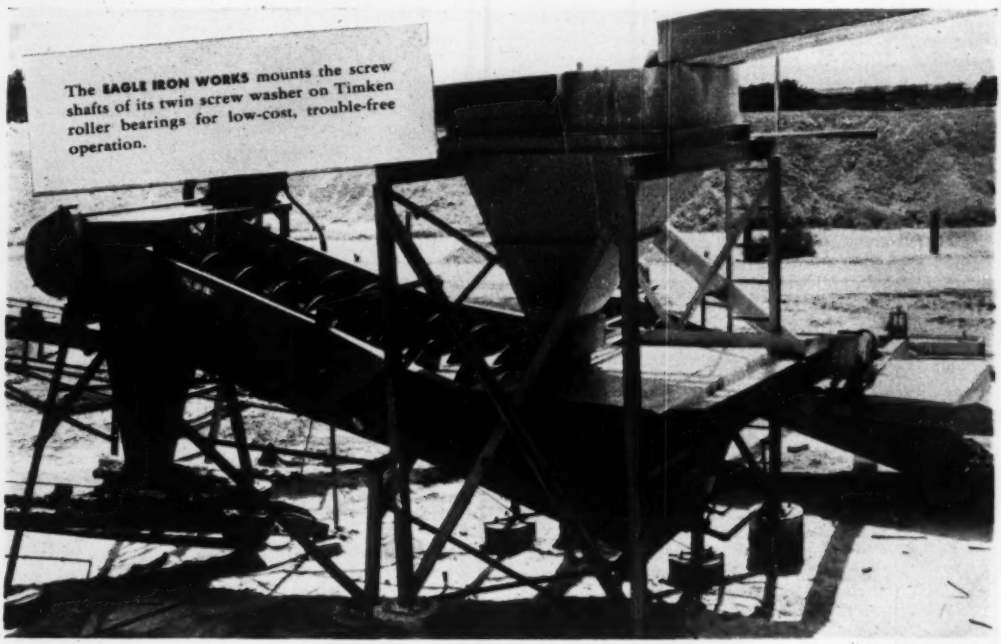
More effective closures can be used with Timken bearings because they keep housing and shaft concentric. Grit and water are kept out—lubricant kept in. Tapered construction enables Timken bearings to take both radial and thrust loads. Shafts are held in rigid alignment reducing wear on moving parts. Friction is practically eliminated due to the true rolling motion and smooth surface finish of Timken bearings.

No other bearing gives you *all* the advantages you get with Timken tapered roller bearings. Whether you build or buy, make sure you insist upon them for your equipment. Always look for the trademark "Timken" on every bearing. The Timken Roller Bearing Company, Canton 6, Ohio. Canadian plant: St. Thomas, Ontario. Cable address: "TIMROSCO".

This symbol on a product means its bearings are the best.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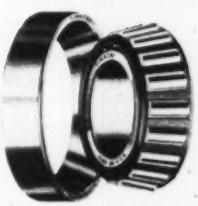

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